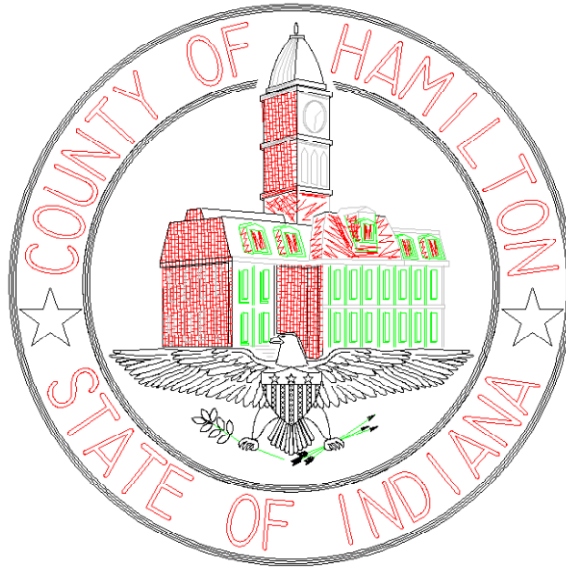


CONTRACT DOCUMENTS AND SPECIFICATIONS



**SMALL STRUCTURE # 32028 (BRIDGE #303)
E256TH STREET / TAYLOR CREEK AND
SMALL STRUCTURE # 32059 (BRIDGE #304)
CAL CARSON ROAD / TAYLOR CREEK AND
RECONSTRUCTION OF TAYLOR CREEK DITCH**

JACKSON TOWNSHIP

HAMILTON COUNTY, INDIANA

PB – 13 – 0003 & PB – 13 – 0004

***PREPARED BY:
DLZ INDIANA, LLC
157 East Maryland Street
Indianapolis, IN 46204
PH. (317) 633-4120
FAX (317) 633-4177***



SPECIFICATIONS FOR

**SMALL STRUCTURE # 32028 (BRIDGE #303)
E256TH STREET / TAYLOR CREEK AND
SMALL STRUCTURE # 32059 (BRIDGE #304)
CAL CARSON ROAD / TAYLOR CREEK AND
RECONSTRUCTION OF TAYLOR CREEK DRAIN
JACKSON TOWNSHIP
HAMILTON COUNTY, INDIANA**



[Signature]
Registered Engineer No. 860383
State of Indiana
DLZ Indiana LLC

Certified by:



7/26/2016
[Signature]
Registered Engineer No. 910382
State of Indiana
DLZ Indiana LLC



[Signature] 07/26/2016
Registered Engineer No. 10707439
State of Indiana
DLZ Indiana LLC



7/26/16
[Signature]
Registered Engineer No. 60020334
State of Indiana
DLZ Indiana LLC

PREPARED BY:
DLZ INDIANA, LLC
157 East Maryland Street
Indianapolis, IN 46204
PH. (317) 633-4120
FAX (317) 633-4177



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NOTICE TO BIDDERS AND CONTRACTORS

Notice is hereby given that the Board of Commissioners of Hamilton County, Indiana, hereinafter referred to as the Owner, will receive sealed bids for the following project:

**SMALL STRUCTURE # 32028 (BRIDGE #303)
E256TH STREET / TAYLOR CREEK AND
SMALL STRUCTURE # 32059 (BRIDGE #304)
CAL CARSON ROAD / TAYLOR CREEK AND
RECONSTRUCTION OF TAYLOR CREEK DRAIN**

Proposals may be forwarded individually by registered mail or delivered in person, addressed to the Hamilton County Auditor, 33 North 9th Street, Suite L21, Noblesville, Indiana, 46060, prior to 12:30 p.m., August 22, 2016. After 12:30 pm they can be delivered to the Auditor In Hamilton County Commissioners Courtroom up to the time of the noticed bid opening. Only proposals from those Prime Contractors who are registered on the Indiana Department of Transportation's current listing of **Prequalified Contractors for item D(A) "Bridges: Highway Over Water"** will be considered. Any bids submitted by Contractors not approved for this item on the list will be returned to the bidder unopened.

All proposals will be considered by the *OWNER* at a public meeting held in the Hamilton County Government & Judicial Center at Noblesville, Indiana, Commissioner's Courtroom, and opened and read aloud **at 1:00 p.m. local time, August 22, 2016.**

The work to be performed and the proposals to be submitted shall include a bid for all general construction, labor, material, tools, equipment, taxes, (both federal and state), permits licenses, insurance, service costs, etc. incidental to and required for this project..

All materials furnished and labor performed incidental to and required by the proper and satisfactory execution of the contract to be made, shall be furnished and performed in accordance with requirements from the drawings and specifications included in the contract documents, which will be on file at **DLZ Indiana, LLC, 157 East Maryland Street, Indianapolis, Indiana, 46204**, beginning at **8:30 a.m. on July 29, 2016**, and may be obtained for the sum of \$100.00 plus shipping for the contract documents and specifications, of which none is refundable. Payment shall be by money order or check and shall be made payable to DLZ Indiana, LLC. Interested parties can view the Contract Documents at www.hamiltoncounty.in.gov/bids.asp. Documents posted online are for **informational purposes only**. It shall be the responsibility of the individual to periodically check for addendums issued until the bid date. Hamilton County is not responsible for any errors or omissions in the documents posted online. Only those who purchase Contract Documents will be automatically notified of addenda. Contract Documents **must be purchased** to be eligible to bid on this contract.

Each individual proposal must be enclosed in a sealed envelope with the county supplied sealed

bid notice bearing the title of the project, bid opening date and the name of the bidder firmly affixed. All mailer packets shall have a separately sealed envelope inside the mailer with the county supplied sealed bid notice firmly affixed to the inside sealed bid. Each proposal must be submitted separately. **The bidder shall affix identifying tabs to the following sheets of each proposal as mentioned below:**

<i>Form 96</i>	<i>Financial Statement</i>
<i>Non-Collusion Affidavit</i>	<i>Receipt of Addendum (If Applicable)</i>
<i>Bid Bond</i>	<i>Itemized Proposal</i>
<i>Employment Eligibility Verification Certification</i>	<i>Drug Testing Program Compliance</i>

Each individual proposal shall be accompanied by a certified check or acceptable bidder's bond, made payable to the Hamilton County Auditor, in a sum of not less than ten percent (10%) of the total amount of the proposal, which check or bond will be held by the said Hamilton County Auditor as evidence that the bidder will, if awarded a contract, enter into the same with the OWNER upon notification from him to do so within ten (10) days of said notification. Failure to execute the contract and to furnish performance bond to Hamilton County, Indiana, will be cause for forfeiture of the amount of money represented by the certified check, or bidder's bond, as and for liquidated damages. Form 96, as prescribed by the Indiana State Board of Accounts, shall be properly completed, and submitted with bid proposals. The Commissioners at their discretion reserve the right to waive any and all informalities in the bidding. All bids submitted shall be good for 120 days from the opening of the bids.

Dawn Coverdale
Hamilton County Auditor

Dated:
Noblesville Times & Noblesville Ledger: July 29, 2016 and August 5, 2016

BID SEAL
< NOTICE >

Sealed Bid Documents shall contain on the outside of the sealed envelope the following completed self-sticking label:

All mailer packers will be opened upon receipt.
Make sure the sealed envelope is contained within.

< NOTICE >

PROPOSAL

To the Board of County Commissioners of Hamilton County, of the State of Indiana; hereinafter referred to as OWNER:

**SMALL STRUCTURE # 32028 (BRIDGE #303)
E256TH STREET / TAYLOR CREEK AND
SMALL STRUCTURE # 32059 (BRIDGE #304)
CAL CARSON ROAD / TAYLOR CREEK AND
RECONSTRUCTION OF TAYLOR CREEK DITCH**

Pursuant to the legal notice that sealed proposals for the above project would be received by the Board of County Commissioners of Hamilton County, Indiana,

The undersigned hereby tenders this bid to construct the work in accordance with the plans, profiles, drawings, specifications, and all authorized revisions for this contract which are on file in the office of the Hamilton County Highway Department; and to furnish all necessary machinery, equipment, tools, labor and other means of construction and to furnish all material specified in the manner and at the time prescribed and under the supervision and direction of the OWNER or his duly authorized representative and pursuant to the terms of the Performance Bond and the Payment Bond in the amount of not less than One Hundred Percent (100%) of the amount of the Proposal, for the unit prices given on the attached Itemized Proposal.

Together with this PROPOSAL, the undersigned has:

- A. Filed an Itemized Proposal with a unit price for each item listed, together with a total amount for all items, based upon the unique characteristics of this contract;
- B. Executed the Form No. 96 filed herewith;
- C. Filed a properly executed Bid Bond or certified check made payable to the Hamilton County Treasurer herewith in an amount greater than or equal to ten percent (10%) of the total amount of this proposal;
- D. Executed the Non-Collusion affidavit filed herewith;
- E. Executed the Legal Status of Bidder Form filed herewith;
- F. Filed a current Financial Statement herewith;
- G. Filed an Employment Eligibility Verification Form herewith;
- H. Durg Testing Program Compliance

If awarded the contract, the undersigned promises to prosecute the work so as to complete the contract within the time specified in the Special Provisions.

Witness our hands this _____ day of, _____ 20____.

Firm Name : _____

Address : _____

By : _____
(Signature)

Name : _____
(Printed)

Title : _____
(Printed)



CONTRACTOR'S BID FOR PUBLIC WORK - FORM 96

State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)

Prescribed by State Board of Accounts

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year): _____

1. Governmental Unit (Owner): _____

2. County : _____

3. Bidder (Firm): _____

Address: _____

City/State/ZIPcode: _____

4. Telephone Number: _____

5. Agent of Bidder (if applicable): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the public works project of _____
(Governmental Unit) in accordance with plans and specifications prepared by _____

_____ and dated _____ for the sum of
_____ \$ _____

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS

(If applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ACCEPTANCE

The above bid is accepted this _____ day of _____, _____, subject to the following conditions: _____

Contracting Authority Members:

_____	_____
_____	_____
_____	_____

PART II

(For projects of \$150,000 or more – IC 36-1-12-4)

Governmental Unit: _____

Bidder (Firm) _____

Date (month, day, year): _____

These statements to be submitted under oath by each bidder with and as a part of his bid.
Attach additional pages for each section as needed.

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. *(Examples could include a narrative of when you could begin work, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)*

2. Please list the names and addresses of all subcontractors *(i.e. persons or firms outside your own firm who have performed part of the work)* that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed project? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

SECTION IV CONTRACTOR'S NON – COLLUSION AFFIDAVIT

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated at _____ this _____ day of _____, _____

(Name of Organization)

By _____

(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
COUNTY OF _____) ss

Before me, a Notary Public, personally appeared the above-named _____ and
swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

My Commission Expires: _____

County of Residence: _____

ITEMIZED PROPOSAL**SS 32028 (Bridge 303) & Taylor Creek Ditch Design
HCHD # PB 13-0003**ITEMIZED PROPOSAL DATE: July 29, 2016LETTING DATE: August 22, 2016

CONTRACTOR: _____

SCHEDULE OF PAY ITEMS

LINE NO	ITEM DESCRIPTION	INDOT SPEC SEC/SPECIAL PROVISION	UNITS	QTY	UNIT PRICE		BID AMOUNT	
					DOLLARS	CENTS	DOLLARS	CENTS
1	CONSTRUCTION ENGINEERING	105	LS	1				
2	MOBILIZATION AND DEMOBILIZATION	110	LS	1				
3	CLEARING RIGHT OF WAY	201/ SP-17	LS	1				
4	PRESENT STRUCTURE REMOVE (BRIDGE 303)	202	LS	1				
5	EXCAVATION, COMMON **	203	CYS	412				
6	EXCAVATION, COMMON FOR UNDERCUTTING*	203/ SP-45	CYS	100				
7	EXCAVATION, WATERWAY **	203/ SP-20	CYS	340				
8	EXCAVATION, CHANNEL**	203/ SP-54	CYS	7981				
9	EXCAVATION, WET **	206	CYS	60				
10	EXCAVATION, FOUNDATION,UNCLASSIFIED **	206	CYS	70				
11	#2 STONE	205	TON	345				
12	TEMPORARY SEDIMENT BASIN	205/ SP-23	EACH	5				
13	SEDIMENT, REMOVE	205	CYS	25				
14	TEMPORARY CULVERT PIPE PROTECTION	205/ SP-43	EACH	1				
15	TEMPORARY SEDIMENT TRAP	205/ SP-44	EACH	1				
16	TEMPORARY SILT FENCE	205	LFT	1625				
17	SUBGRADE TREATMENT TYPE II **	207	SYS	2118				
18	COMPACTED AGGREGATE, NO. 53*	303/SP-45	TON	50				
19	STRUCTURE BACKFILL TYPE 1 **	211/SP-40	CYS	5				
20	STRUCTURE BACKFILL TYPE 4 **	211/ SP-40	CYS	30				
21	DENSE GRADED SUBBASE **	302	CYS	26				
22	COMPACTED AGGREGATE, NO. 53	303	TON	347				
23	WIDENING WITH HMA TYPE B	304	TON	70				
24	SURFACE MILLING, ASPHALT	306/ SP-25	SYS	212				
25	HMA SURFACE,TYPE B	402	TON	140				
26	HMA INTERMEDIATE,TYPE B	402	TON	245				
27	HMA BASE,TYPE B	402	TON	495				
28	ASPHALT FOR TACK COAT	406	SYS	3232				
29	GUARDRAIL TRANSITION TYPE TGS-1	601/SP-49	EACH	4				
30	GUARDRAIL TERMINAL SYSTEM, W BEAM, CURVED, 3	601	EACH	1				
31	GUARDRAIL END TREATMENT, OS	601	EACH	3				

LINE NO	ITEM DESCRIPTION	INDOT SPEC SEC/SPECIAL PROVISION	UNITS	QTY	UNIT PRICE		BID AMOUNT	
					DOLLARS	CENTS	DOLLARS	CENTS
32	GUARDRAIL, W BEAM, 6 FT. 3 IN. SPACING	601	LFT	325				
33	HMA FOR APPROACHES, TYPE B	610	TON	20				
34	REINFORCED CONCRETE BRIDGE APPROACH ,10 IN	609/SP-48	SYS	150				
35	MAILBOX ASSEMBLY, SINGLE	611	EACH	1				
36	RIGHT OF WAY MARKER	615/ SP-42	EACH	11				
37	GEOTEXTILES	616	SYS	1181				
38	RIPRAP, REVETMENT	616	TON	489				
39	EROSION CONTROL BLANKET	621	SYS	10463				
40	FERTILIZER	621	TON	2				
41	MOBILIZATION AND DEMOBILIZATION FOR SEEDING	621	EACH	1				
42	MULCHED SEEDING, T, CONVENTIONAL MIX	621	SYS	1780				
43	SEED MIXTURE, R	621	LBS	60				
44	SEED MIXTURE, D	621	LBS	76				
45	MULCHING MATERIAL	621	TONS	2				
46	GABIONS,METALLIC COATING	625/SP-51	CYS	68				
47	TAYLOR CREEK SEED MIXTURE,TEMPORARY	621/SP-52	LBS	78				
48	TAYLOR CREEK SEED MIXTURE,PERMANENT	621/SP-53	LBS	187				
49	TAYLOR CREEK FILTER STRIP	621/ SP-57	LBS	4				
50	PILE, STEEL PIPE, 0.312 IN, 14 IN	701	LFT	892				
51	CONCRETE, A, SUBSTRUCTURE	702	CYS	22.7				
52	CONCRETE, B, FOOTINGS	702	CYS	3.6				
53	REINFORCED BARS, EPOXY COATED	703	LBS	31129				
54	THREADED TIE BAR ASSEMBLY, EPOXY COATED	703	EACH	34				
55	CONCRETE,C,SUPERSTRUCTURE	704	CYS	110.5				
56	RAILING STEEL, TS-1	706/SP-49	LFT	77				
57	SURFACE SEAL (BRIDGE 303)	709/SP-47	L.S	1				
58	PIPE, TYPE 3, CIRCULAR, 12 IN.	715	LFT	27				
59	PIPE, TYPE 3, CIRCULAR, 12 IN, CMP	715	LFT	60				
60	PIPE, TYPE 4, CIRCULAR, 6 IN. *	715	LFT	20				
61	PIPE, TYPE 4, CIRCULAR, 8 IN. *	715	LFT	20				
62	PIPE, TYPE 4, CIRCULAR, 10 IN. *	715	LFT	20				
63	PIPE, TYPE 4, CIRCULAR, 12 IN. *	715	LFT	20				
64	PIPE END SECTION, 12 IN.	715	EACH	2				
65	CMP DROP STRUCTURE	720/SP-55	EACH	1				
66	ROAD CLOSURE SIGN ASSEMBLY	801/ SP-31	EACH	4				
67	DETOUR ROUTE MARKER ASSEMBLY	801/ SP-30	EACH	14				
68	CONSTRUCTION SIGN, A	801	EACH	14				
69	CONSTRUCTION SIGN,B	801	EACH	2				
70	CONSTRUCTION SIGN, C	801	EACH	2				

LINE NO	ITEM DESCRIPTION	INDOT SPEC SEC/SPECIAL PROVISION	UNITS	QTY	UNIT PRICE		BID AMOUNT	
					DOLLARS	CENTS	DOLLARS	CENTS
71	MAINTAINING TRAFFIC	801	LS	1				
72	BARRICADE, III-A	801	LFT	48				
73	BARRICADE, III-B	801	LFT	48				
74	LINE, THERMOPLASTIC, SOLID, WHITE, 4 IN.	808	LFT	1269				
75	LINE, THERMOPLASTIC, SOLID, YELLOW, 4 IN.	808	LFT	1269				
76	LINE, MULTI-COMPONENET, SOLID, WHITE, 4 IN	808	LFT	171				
77	LINE, MULTI-COMPONENET, SOLID, YELLOW, 4 IN	808	LFT	171				
				TOTAL				
PRINTED TOTAL (HCHD # PB 13-0003)								

*Undistributed Quantity

**Quantity Shown to be the final pay
Quantity

ITEMIZED PROPOSAL**SS 32059(Bridge 304)****HCHD # PB 13-0004**ITEMIZED PROPOSAL DATE: July 29, 2016LETTING DATE: August 22, 2016

CONTRACTOR: _____

SCHEDULE OF PAY ITEMS

LINE NO	ITEM DESCRIPTION	INDOT SPEC SEC/SPECIAL PROVISION	UNITS	QTY	UNIT PRICE		BID AMOUNT	
					DOLLARS	CENTS	DOLLARS	CENTS
1	CONSTRUCTION ENGINEERING	105	LS	1				
2	MOBILIZATION AND DEMOBILIZATION	110	LS	1				
3	CLEARING RIGHT OF WAY	201/ SP-17	LS	1				
4	PRESENT STRUCTURE REMOVE (BRIDGE 304)	202	LS	1				
5	EXCAVATION, COMMON **	203	CYS	605				
6	EXCAVATION, COMMON FOR UNDERCUTTING*	203/ SP-45	CYS	100				
7	EXCAVATION, WATERWAY **	203/ SP-20	CYS	410				
8	Borrow**	203	CYS	980				
9	EXCAVATION, WET **	206	CYS	120				
10	EXCAVATION, FOUNDATION, UNCLASSIFIED **	206	CYS	15				
11	#2 STONE	205	TON	217				
12	SEDIMENT, REMOVE	205	CYS	25				
13	TEMPORARY CHECK DAM, REVETMENT RIPRAP	205	TON	62				
14	TEMPORARY SEDIMENT TRAP	205/ SP-44	EACH	4				
15	TEMPORARY SILT FENCE	205	LFT	420				
16	SUBGRADE TREATMENT TYPE II **	207	SYS	3235				
17	COMPACTED AGGREGATE, NO. 53*	303/SP-45	TON	50				
18	STRUCTURE BACKFILL TYPE 4 **	211/ SP-40	CYS	20				
19	DENSE GRADED SUBBASE **	302	CYS	32				
20	COMPACTED AGGREGATE, NO. 53	303	TON	525				
21	WIDENING WITH HMA TYPE B	304	TON	75				
22	SURFACE MILLING, ASPHALT	306/ SP-25	SYS	408				
23	HMA SURFACE, TYPE B	402	TON	220				
24	HMA INTERMEDIATE, TYPE B	402	TON	380				
25	HMA BASE, TYPE B	402	TON	765				
26	ASPHALT FOR TACK COAT	406	SYS	4931				
27	GUARDRAIL TRANSITION TYPE TGS-1	601/SP-49	EACH	4				
28	GUARDRAIL END TREATMENT, OS	601	EACH	4				
29	GUARDRAIL, W BEAM, 6 FT. 3 IN. SPACING	601	LFT	450				

LINE NO	ITEM DESCRIPTION	INDOT SPEC SEC/SPECIAL PROVISION	UNITS	QTY	UNIT PRICE		BID AMOUNT	
					DOLLARS	CENTS	DOLLARS	CENTS
30	REINFORCED CONCRETE BRIDGE APPROACH, 10 IN	609/SP-48	SYS	192				
31	RIGHT OF WAY MARKER	615/ SP-42	EACH	2				
32	GEOTEXTILES	616	SYS	1091				
33	RIPRAP, REVETMENT	616	TON	358				
34	EROSION CONTROL BLANKET	621	SYS	2640				
35	FERTILIZER	621	TON	1				
36	MOBILIZATION AND DEMOBILIZATION FOR SEEDING	621	EACH	1				
37	MULCHED SEEDING, T, CONVENTIONAL MIX	621	SYS	2640				
38	SEED MIXTURE, R	621	LBS	90				
39	MULCHING MATERIAL	621	TONS	1.00				
40	PILE, STEEL H, HP 12 IN X 53	701	LFT	1425				
41	CONCRETE, A, SUBSTRUCTURE	702	CYS	60.40				
42	CONCRETE, B, FOOTINGS	702	CYS	7.60				
43	REINFORCED BARS, EPOXY COATED	703	LBS	55267				
44	THREADED TIE BAR ASSEMBLY, EPOXY COATED	703	EACH	34				
45	CONCRETE,C,SUPERSTRUCTURE	704	CYS	115.7				
46	RAILING STEEL, TS-1	706/SP-49	LFT	125				
47	SURFACE SEAL (BRIDGE 304)	709/SP-47	L.S	1				
48	ROAD CLOSURE SIGN ASSEMBLY	801/ SP-31	EACH	4				
49	DETOUR ROUTE MARKER ASSEMBLY	801/ SP-30	EACH	14				
50	CONSTRUCTION SIGN, A	801	EACH	14				
51	CONSTRUCTION SIGN,B	801	EACH	2				
52	CONSTRUCTION SIGN, C	801	EACH	2				
53	MAINTAINING TRAFFIC	801	LS	1				
54	BARRICADE, III-A	801	LFT	48				
55	BARRICADE, III-B	801	LFT	48				
56	LINE, THERMOPLASTIC, SOLID, WHITE, 4 IN.	808	LFT	1810				
57	LINE, THERMOPLASTIC, SOLID, YELLOW, 4 IN.	808	LFT	1810				
58	LINE, MULTI-COMPONENET, SOLID, WHITE, 4 IN	808	LFT	241				

LINE NO	ITEM DESCRIPTION	INDOT SPEC SEC/SPECIAL PROVISION	UNITS	QTY	UNIT PRICE		BID AMOUNT	
					DOLLARS	CENTS	DOLLARS	CENTS
59	LINE, MULTI-COMPONENET, SOLID, YELLOW, 4 IN	808	LFT	241				
				TOTAL				
PRINTED TOTAL (HCHD # PB 13-0004)								

*Undistributed Quantity

**Quantity Shown to be the final pay
Quantity

TOTAL AMOUNT OF BID (HCHD # PB 13-0003 & PB 13-0004) =	
Total AMOUNT OF BID IN WORDS (HCHD # PB 13-0003 & PB 13-0004) =	

SUBMITTED BY:

SIGNATURE:

PRINTED NAME:

TITLE:

ADDRESS:

ADDENDUM RECEIPT

Receipt of the following addenda to the bidding documents is acknowledged (initial each):

Addendum No. _____ Dated: _____ Initials: _____

Addendum No. _____ Dated: _____ Initials: _____

Addendum No. _____ Dated: _____ Initials: _____

Addendum No. _____ Dated: _____ Initials: _____

Addendum No. _____ Dated: _____ Initials: _____

BID BOND

KNOWN BY ALL PERSONS BY THESE PRESENTS THAT THE UNDERSIGNED:

BIDDER : _____

as principal, and

SURETY: [Name] _____

[Address] _____

as Surety,

are firmly bound unto Hamilton County, Indiana in the full and just sum of an amount equal to TEN PERCENT of the amount of the Principal's bid, to the payment of which, well and truly to be made, we bind ourselves jointly and severally, and our joint and several heirs, executors, administrators and assigns, firmly by these presents.

THE CONDITIONS OF THE ABOVE OBLIGATIONS ARE SUCH THAT, whereas, the Principal is herewith submitting a bid and proposal for construction and completion of this contract in accordance with plans and specifications, which are made part of this bond;

NOW, THEREFORE, if Hamilton County shall award the Principal the contract and the Principal shall promptly, enter into contract with Hamilton County, then this obligation shall be void; otherwise to remain in full force, virtue, and effect.

IT IS AGREED that no modifications, omissions, or additions in or to the terms of such contract or in or to the plans or specifications therefor shall affect the obligation of such sureties on this bond.

IN WITNESS WHEREOF, we hereto set our hands and seals:

< <BIDDER > >

(Bid Bond)

(Signature)

(Printed)

(Title)

State of Indiana, County of _____, SS:
Before me, the undersigned Notary Public, personally appeared;
_____ As Principal and acknowledged the execution of the above
bond on this _____ Day of _____, 20____.
My commission Expires: _____

(County of Residence) _____ (Notary Signature & Seal)

< <SURETY > >

(Bid Bond)

(Signature)

(Printed)

(Title)

State of Indiana, County of _____, SS:
Before me, the undersigned Notary Public, personally appeared;
_____ As Principal and acknowledged the execution of the above
bond on this _____ Day of _____, 20____.
My commission Expires: _____

(County of Residence) _____ (Notary Signature & Seal)

PAYMENT BOND

KNOWN BY ALL PERSONS BY THESE PRESENTS THAT THE UNDERSIGNED:

BIDDER: _____

as principal, and SURETY:

[Name] _____

[Address] _____

as Surety,

are firmly bound unto Hamilton County, Indiana in the penal sum of an amount equal to ONE HUNDRED PERCENT of the amount of the Principal's bid, to the payment of which, well and truly made, we bind ourselves jointly and severally, and our joint and several heirs, executors, administrators and assigns, firmly by these presents.

THE CONDITIONS OF THE ABOVE OBLIGATIONS ARE SUCH THAT, whereas, the Principal is herewith submitting a bid and proposal for construction and completion of this contract in accordance with plans and specifications, which are made part of this bond;

NOW, THEREFORE, if Hamilton County shall award the Principal the contract for work and the Principal shall promptly enter into contract with Hamilton County, for the work and shall promptly make payments of all amounts due to all Claimants, then this obligation shall be void; otherwise to remain in full force, virtue, and effect. Claimant shall mean any subcontractor, material supplier or the person, firm, or corporation furnishing materials or equipment for or performing labor or services in the prosecution of the work provided in such an agreement, including lubricants, oil, gasoline, coal, and coke, repairs on machinery, and tools, whether consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work.

IT IS AGREED that no modifications, omissions, or additions in or to the terms of such contract or in or to the plans or specifications therefor shall affect the obligation of such sureties on this bond.

IN WITNESS WHEREOF, we hereto set our hands and seals:

< <BIDDER > >

(Payment Bond)

(Signature)

(Printed)

(Title)

State of Indiana, County of _____, SS:
Before me, the undersigned Notary Public, personally appeared;
_____ As Principal and acknowledged the execution of the above
bond on this _____ Day of _____, 20____.
My commission Expires: _____

(County of Residence) _____ (Notary Signature & Seal)

< <SURETY > >

(Payment Bond)

(Signature)

(Printed)

(Title)

State of Indiana, County of _____, SS:
Before me, the undersigned Notary Public, personally appeared;
_____ As Principal and acknowledged the execution of the above
bond on this _____ Day of _____, 20____.
My commission Expires: _____

(County of Residence) _____ (Notary Signature & Seal)

PERFORMANCE BOND

KNOWN BY ALL PERSONS BY THESE PRESENTS THAT THE UNDERSIGNED:

BIDDER _____ :

as principal, and SURETY:

[Name] _____

[Address] _____

as Surety,

are firmly bound unto Hamilton County, Indiana in the penal sum of an amount equal to ONE HUNDRED PERCENT of the amount of the Principal's bid, to the payment of which, well and truly made, we bind ourselves jointly and severally, and our joint and several heirs, executors, administrators and assigns, firmly by these presents.

THE CONDITIONS OF THE ABOVE OBLIGATIONS ARE SUCH THAT, whereas, the Principal is herewith submitting a bid and proposal for construction and completion of this contract in accordance with plans and specifications, which are made part of this bond;

NOW, THEREFORE, if Hamilton County shall award the Principal the contract for work and the Principal shall promptly enter into contract with Hamilton County, for the work and shall well and faithfully do and perform the same in all respects according to the plans and specifications and according to the time, terms, and conditions specified in this contract to be entered into, and in accordance with all requirements of law and shall promptly pay all debts incurred by the Principal or a subcontractor in the construction of the work, including labor, service, and materials furnished, and shall remain in effect at least until one year after the date when final payment becomes due, then this obligation shall be void; otherwise to remain in full force, virtue, and effect.

IT IS AGREED that no modifications, omissions, or additions in or to the terms of such contract or in or to the plans or specifications therefor shall affect the obligation of such sureties on this bond.

IN WITNESS WHEREOF, we hereto set our hands and seals:

< <BIDDER > >
(Performance Bond)

(Signature)

(Printed)

(Title)

State of Indiana, County of _____, SS:
Before me, the undersigned Notary Public, personally appeared;
_____ As Principal and acknowledged the execution of the above
bond on this _____ Day of _____, 20____.
My commission Expires: _____

(County of Residence)

(Notary Signature & Seal)

< <SURETY > >
(Performance Bond)

(Signature)

(Printed)

(Title)

State of Indiana, County of _____, SS:
Before me, the undersigned Notary Public, personally appeared;
_____ As Principal and acknowledged the execution of the above
bond on this _____ Day of _____, 20____.
My commission Expires: _____

(County of Residence)

(Notary Signature & Seal)

NON-COLLUSION AFFIDAVIT

STATE OF _____)
) SS
COUNTY OF _____)

The undersigned contractor, being duly sworn, on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by it, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone, nor to prevent any person from bidding nor to induce anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding in any way or manner whatever.

BY : _____
(Signature)

(Title)

FOR : _____
(Firm or Corporation)

State of Indiana, County of _____, SS:
Before me, the undersigned Notary Public, personally appeared;
_____ As Principal and acknowledged the execution of the above
bond on this _____ Day of _____, 20____.
My commission Expires: _____

(County of Residence) (Notary Signature & Seal)

LEGAL STATUS OF BIDDER

This Proposal is submitted in the name of:

Firm Name _____

The undersigned hereby designates below his business address to which all notices, directions or other communications may be served or mailed:

Street : _____

City : _____

State : _____ Zip Code: _____

The undersigned hereby declares that he has legal status checked below:

() INDIVIDUAL

() INDIVIDUAL DOING BUSINESS UNDER AN ASSUMED NAME

() CO-PARTNERSHIP (The Assumed name of the partnership is
registered in the County of _____, Indiana.

() CORPORATION INCORPORATED UNDER THE LAWS OF THE STATE OF
. The Corporation is:

() LICENSED TO DO BUSINESS IN INDIANA

() NOT NOW LICENSED TO DO BUSINESS IN INDIANA

The name, titles and home address of all persons who are officers or Partners in the organization are as follows:

NAME AND TITLE _____ HOME ADDRESS

Signed and Sealed this _____ day of _____, 20____.

By _____
(Signature)

(Printed)

(Title)

AFFIDAVIT AND WAIVER OF LIEN☐ Final ☐ Partial ☐ Payment to Follow

State of Indiana, County of _____ SS

(Name of Officer) Being duly sworn states that he is the _____ of
(Title)_____ having contracted with _____ to furnish certain
materials and/or labor as follows _____

(Description)

for the project known as _____

located at _____ and owned by _____ Hamilton County _____
(Owner)

and does hereby further state on behalf of the aforementioned subcontractor/supplier: _____

(PARTIAL WAIVER) that there is due from the CONTRACTOR the sum of _____ Dollars (\$ _____)

() receipt of which is hereby acknowledged; or

() the payment of which has been promised as the sole consideration of this affidavit and Partial
Waiver of Lien which is given solely with respect to said amount and which waiver shall be
effective only upon receipt of payment thereof by the undersigned:

(FINAL WAIVER) that the final balance due from the CONTRACTOR is the sum of _____ Dollars (\$ _____)

() receipt of which is hereby acknowledged or

() the payment of which has been promised as the sole consideration for the
Affidavit and Final Waiver of Lien which shall become effective upon receipt of such
paymentTHEREFORE, the undersigned waives and releases unto the OWNER of said premises, any and all lien or claim
whatsoever on the above-described property and improvements thereon on account of LABOR or material or both,
furnished by the undersigned thereto, subject to limitations or conditions expressed herein, if any; and further
certifies that no other party has any claim or right to a lien on account of any work performed or material furnished
to the undersigned for said project, and within the scope of this affidavit and waiver._____
(Firm) By _____ Title _____
(Authorized Representative)

WITNESS MY HAND AND NOTARIAL SEAL this _____ day of _____ 20____

(Notary Public)

My Commission Expires _____

Printed

Residing in _____ County,

CERTIFICATION LETTER

TO BE COMPLETED BY ALL SUB-CONTRACTORS AND MATERIAL SUPPLIERS

Reference:

**SMALL STRUCTURE # 32028 (BRIDGE #303)
E256TH STREET / TAYLOR CREEK AND
SMALL STRUCTURE # 32059 (BRIDGE #304)
CAL CARSON ROAD / TAYLOR CREEK AND
RECONSTRUCTION OF TAYLOR CREEK DITCH**

We hereby certify that we have examined the Contract Plans and Specifications for this project and that all materials and workmanship will be in strict compliance therewith.

Company Name

Address

By _____
(Signature)

(Printed)

(Title)

Date _____

Describe Item of work or material to be furnished: _____

EMPLOYMENT ELIGIBILITY VERIFICATION CERTIFICATION

This Certification is submitted by the undersigned, _____, as part of the contract with Hamilton County for the project known as _____ entered into on the _____ day of _____, 20___. The undersigned affirms under the penalties of perjury that the Contractor does not knowingly employ an unauthorized alien.

The Contractor shall enroll in and verify the work eligibility status of all newly hired employees through the E-Verify program as defined in IC 22-5-1.7-3. The Contractor is not required to participate if the Contractor is self-employed and does not employ any employees.

The Contractor shall not knowingly employ or contract with an unauthorized alien. The Contractor shall not retain an employee or contract with a person that the Contractor subsequently learns is an unauthorized alien.

The Contractor shall require all subcontractors who perform work under its contract, to certify to the Contractor that:

1. The subcontractor does not knowingly employ or contract with an unauthorized alien;
2. The subcontractor has enrolled and is participating in the E-Verify program. The Contractor agrees to maintain this certification at least two years after the term of a contract with a subcontractor.

The County may terminate the contract if the Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified by the County.

The terms of this Certification shall be incorporated within the contract between the Contractor and the County.

Witness this _____ day of _____, 2015.

Contractor: _____

Address: _____

Signature: _____, _____

Printed: _____ Title _____

Drug Testing Program
IC -4-13-18

This is submitted by the undersigned, _____, as part of the contract with Hamilton County for the project known as _____ entered into on the _____ day of _____, 20____. The undersigned affirms under the penalties of perjury that the Contractor has a drug testing program in compliance with IC 4-13-18 and the program shall continue during the term of the contract with Hamilton County.

The Contractor shall also require the maintenance of a drug testing program from all subcontractors who perform work under its contract.

The County may terminate the contract if the Contractor fails to comply with the terms of IC 4-13-18 provision no later than thirty (30) days after being notified by the County.

The terms of this requirement shall be incorporated within the contract between the Contractor and the County.

I, _____, verify under the penalties of perjury that all requirements of Drug Testing Program per IC 4-13-18 are in compliance:

Witness this _____ day of _____, 20____.

Contractor: _____

Address: _____

Signature: _____, _____

Printed: _____ Title _____

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GENERAL PROVISIONS

GP 1 CONTRACT QUESTIONS

Submit all questions in writing to DLZ INDIANA, LLC (Contact: Faisal Saleem at fsaleem@dlz.com) prior to 9:00 a.m. local time August 15, 2016. A written response will be faxed and mailed to the addresses on the Record of Plans Purchased that is required to be filled out by anyone purchasing plans. No questions will be answered by telephone.

GP 2 PUBLIC OPENING OF BIDS

Bids will be opened publicly and read aloud at **1:00 p.m. local time**, August 22, 2016 in the Hamilton County Government & Judicial Center in Noblesville, Indiana, Commissioner's Courtroom. Bidders, or their authorized agents, are invited to be present. Any Bids received after 12:00 p.m. local time August 22, 2016 will be returned to the bidder unopened.

GP 3 NOTIFICATION OF WORK SCHEDULE

The CONTRACTOR shall provide a listing of the next workday's work activities by 12:00 p.m. of that day's work for the ENGINEER'S scheduling and inspection. All work scheduled for Monday shall be provided on Friday of the preceding week.

Failure to provide such notice within the specified time may result in the failure of the ENGINEER to pay for any material placed that day.

GP 4 WARRANTY OF WORK

The CONTRACTOR warrants and guarantees for **one year** after final acceptance of the contract, to the OWNER that all work will be performed, supplied, furnished and installed, and that the work will perform in strict accordance with the Contract Documents and will not be defective. Notice of all work determined or suspected to be defective or not in conformity with the Contract Documents shall be given to the CONTRACTOR within reasonable time after observance thereof.

GP 5 EXAMINATION OF THE PROJECT SITE

Before the bid date, all bidders shall carefully and thoroughly examine the entire site of the proposed work, adjacent premises, various means of approach, access thereto by means of a site inspection visit, and make all necessary investigations to inform themselves thoroughly as to the facilities necessary for delivering, placing, and operating the necessary construction equipment, and for delivering and handling materials at the site, and shall inform themselves thoroughly as to any and all actual or potential difficulties, hindrances, delays, and constraints involved in the commencement, prosecution and completion of the proposed work in accordance with the requirements of this contract. The CONTRACTOR, by the execution of the Contract, shall in no way be relieved of any obligation under it, due to his failure to receive or examine any form or legal instrument, or to visit the site and acquaint himself with the conditions there existing. The OWNER will be justified in rejecting any claim based on facts, which he should have noticed as a result thereof.

GP 6 CONTRACT DOCUMENTS

The Indiana Department of Transportation, Standard Specifications dated 2014 together with most recently published Supplemental Specifications shall be used in conjunction with these Plans, Contract Forms, General Provision, Special Provisions, Modifications to the Specifications, Standard Sheets and any addenda which may be issued for this project.

It is the intent of these Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance therewith. Any work, materials or equipment that may reasonably be inferred will be supplied whether or not specifically called for.

Wherever reference is made to the Indiana Department of Transportation, Director, or Chief Highway Engineer, it shall be interpreted as the Board of County Commissioners of Hamilton County, Indiana.

GP 7 CONTRACTOR

The Firm or Corporation with whom the OWNER has entered into the Construction Contract.

GP 8 OWNER

The Board of County Commissioners of Hamilton County, Indiana

GP 9 ENGINEER

Hamilton County Highway Engineer or its authorized representative.

GP 10 COUNTY

County of Hamilton, State of Indiana.

GP 11 PRE-QUALIFICATION AND BIDDING

CONTRACTOR shall meet all the requirements setout in Section 102.00. Only bids from those CONTRACTORS who are currently registered on the Indiana Department of Transportation's listing of Prequalified Contractors for item D(A) "Bridges: Highway Over Water" will be considered. Any bids submitted by CONTRACTORS not on this list will be returned to the bidder unopened.

GP 12 AWARD OF CONTRACT

The OWNER reserves the right to reject any or all bids or to waive any informalities and to accept the bid, which it deems favorable to the interest of the OWNER after all bids have been examined and scrutinized.

GP 13 PROOF OF INSURANCE

CONTRACTOR shall not commence work until he has obtained all insurance specified herein, has filed with the OWNER one (1) copy of Certificate of insurance, and such insurance has been approved by the OWNER.

Should any coverage approach expiration during the Contract period, it shall be renewed prior to its expiration, and certificate again filed with the OWNER. If any of such policies are canceled or are changed so as to reduce the coverage evidenced by the Certificate, at least ten (10) days prior written notice by registered mail of such cancellation or change shall be sent to the OWNER.

All insurance provided for under this Section shall be written by Insurance Companies licensed to do business in Indiana and countersigned by registered Indiana agent. The insurance company shall file with the OWNER, one (1) copy of Affirmation of Authority, on the form furnished by the OWNER, as verification of the resident agent.

All insurance shall be maintained in full force and effect until the Contract has been fully and completely performed.

GP 14 ADDITIONAL INSURED

CONTRACTOR shall submit Certificate of Insurance indicating the above necessary coverage as well as naming OWNER, its employees and representatives and ENGINEER as Additional Insured on all policies except Worker's Compensation.

GP 15 INSURANCECONTRACTOR's Liability Insurance

The CONTRACTOR shall maintain such insurance as well as protect himself from claims under Workmen's Compensation Acts and other employee benefit acts; from claims for damages because of bodily injury, including death, to his employees and all others; and from claims for damages to property, any or all of which may arise out of or result from the CONTRACTOR's operation under the Contract, whether such operations be by himself or by any subcontractor, or anyone directly or indirectly employed by either of them. This insurance shall be written for not less than any limits of liability specified herein.

CONTRACTOR's Insurance

The types and minimum amount of insurance to be provided for by the CONTRACTOR shall be as follows:

(A) Workmen's Compensation and Occupational Disease Insurance

The CONTRACTOR shall provide Workmen's compensation and Occupational Disease Insurance as required by law. Such policy shall specifically include coverage for the State of Indiana, and such adjoining states as required by the Contractor's operations.

(B) Employer's Liability Insurance

The CONTRACTOR shall provide Employer's Liability with minimum limits as follows:

\$100,000 bodily injury by accident, each accident;
 \$100,000 bodily injury by disease, each employee;
 \$500,000 bodily injury by disease, policy limit.

(C) Comprehensive General Liability Insurance

The CONTRACTOR shall maintain a Comprehensive General Liability form of Insurance with a combined single limit for bodily injury and property damage of not less than \$1,000,000 each occurrence, \$2,000,000 annual aggregate. The insurance policy shall include the following:

1. Premises Operations: The policy shall include coverage for the following special hazards when applicable to the project:

- (a) Property damage arising out of blasting or explosion
- (b) Property damage arising out of collapse of or structural injury to any building or structure due to grading of land, excavation, burrowing, filling, backfilling, tunneling, pile driving, cofferdam work or caisson work or to moving, shoring, under pinning, raising, or demolition of any building or structure or rebuilding of any structural support thereof.
- (c) Injury to or destruction of wires, conduits, pipes, mains, sewers, and other similar property of any apparatus in connection therewith below the surface of ground, if caused by use of mechanical equipment.

2. Contractual (Broad Form Indemnification): The CONTRACTOR agrees to indemnify and save harmless the Owner, his agents and employees, from and against all loss or expense (including costs and attorneys fees) by reason of liability imposed by law upon the Owner for damages because of bodily injury, including death, at any time resulting there from sustained by any person or persons or on account of damage to property is due or claimed to be due to negligence of the CONTRACTOR, his Subcontractors, employees or agents.

3. CONTRACTOR's Protective: The CONTRACTOR shall maintain this type of coverage on a blanket at basis to cover the operations of any Subcontractors.

(D) Automotive Liability Insurance

The CONTRACTOR shall maintain Comprehensive Automobile Liability Insurance policy with a combined single limit of not less than \$500,000. This coverage may be provided either as a separate policy or as a part of the comprehensive liability policy described above. The automobile insurance must include coverage for all owned, non-owned, and hired vehicles.

(E) Furnish Indiana State Forms No. 19 (Workmen's Compensation) and No. 105 (Occupational Disease Act).

(F) Umbrella Insurance

The CONTRACTOR shall maintain an umbrella policy with limits of not less than \$1,000,000 per occurrence, \$1,000,000 aggregate in addition to their primary insurance.

GP 16 INSPECTION OF WORK

The ENGINEER and his representatives shall at all times have access to the work wherever it is in preparation or in progress.

If the specifications, the ENGINEER's instructions, laws, ordinances or any public authority requires any work to be specially tested or approved, the CONTRACTOR shall give the ENGINEER timely notice of its readiness for inspection and, if the inspection is by an authority other than the ENGINEER, the date fixed for such inspection. If any work should be covered up without the approval or consent of the ENGINEER, it must, if required by the ENGINEER, be uncovered for examination at the CONTRACTOR'S expense.

GP 17 STANDARDS OF QUALITY

All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for in the Contract Documents shall expressly run for the benefit of the OWNER. If requested by the ENGINEER, the CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

GP 18 UTILITIES

The CONTRACTOR shall be responsible for contacting and coordinating with all utilities affected by this project. Contract time will be charged unless the CONTRACTOR can show written evidence that he is making every possible effort on his part to get the utility work completed.

GP 19 PROGRESS SCHEDULE

Within ten days after the date of the Notice to Proceed, the CONTRACTOR shall submit to the ENGINEER for review a proposed schedule indicating the starting and completion dates of the various stages

of the work to be performed under this contract. The ENGINEER shall review the proposed schedule to determine conformity with the contract and will make recommendations to the OWNER concerning approval thereof; however the review, approval or other action taken by the ENGINEER or OWNER in respect of such schedules shall not relieve the CONTRACTOR of its obligations to perform the work within the contract schedule(s).

GP 20 DEWATERING

The CONTRACTOR's attention is directed to the possibility that dewatering may be required during construction. No additional payment will be made for dewatering (if required), but the cost shall be included in other items.

GP21 SUPERVISION

The CONTRACTOR shall supervise and direct the work completely and efficiently devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the Contract Documents.

GP22 RESIDENT SUPERINTENDENT

The CONTRACTOR shall keep on the work site at all times during its progress, a competent resident superintendent, who shall not be replaced without written notice to the ENGINEER except under extraordinary circumstances. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR.

GP23 PERMITS

All permits and licenses which may be required due to construction methods such as, but not limited to, borrow or disposal pits, steam crossings, causeways, work bridges, cofferdams, etc., but which are not part of the contract documents shall be procured by the CONTRACTOR prior to beginning the work which requires the permit.

All charges, fees, and taxes shall be paid, and all notices necessary and incidental to the due and lawful prosecution of the work shall be given.

GP 24 TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE OPERATION

This work shall consist of furnishing, installing, and maintaining signs, barricades, temporary traffic control devices or adjustments, labor, materials, etc., necessary for the maintenance of traffic as called for within the Contract Documents, or as permitted by the ENGINEER and not specifically called out in the Itemized Proposal or specified within the Contract Documents as to the manner of payment, shall be included in the Lump Sum price for maintaining traffic as described within the Contract Documents and the applicable provisions of the Section 105.13 and 108.03 and as set out in the Itemized Proposal. Construction Warning Lights, Type "A" shall be placed on all barricades and Road Construction Ahead signs as per Section 801.14.

PRIOR TO CLOSING ROADS TO TRAFFIC

This work shall consist of CONTRACTOR notifying U.S. Post Office, affected schools, and all Emergency Response Agency's, which shall include but not limited to County Sheriff's, Local Police, and Hospitals, of the road closure. A list containing all notified agencies shall be furnished to the ENGINEER within 24 hours of the notification to these agencies. Road Closure signs (XG20-5) shall be in placed minimum of two weeks prior to the actual road closure or unless specifically stated in contract document. It

shall be CONTRACTOR responsibility to notify the ENGINEER in writing of road closure minimum of three weeks in advance for its approval.

AFTER OPENING ROADS TO TRAFFIC

This work shall consist of CONTRACTOR notifying U.S. Post Office, affected schools, and all Emergency Response Agency's, which shall include but not limited to County Sheriff's, Local Police, and Hospitals, of the road opening. A list containing all notified agencies shall be furnished to the ENGINEER within 24 hours of the notification to these agencies. At any time, CONTRACTOR fails to open the roads or specific roads within the specified time frame as set out in the Contract Documents. Then CONTRACTOR shall pay liquidated damages as set forth elsewhere herein.

This cost shall include all labor, material, equipment, and supervision necessary to maintain Road Closure and Traffic Control for Construction and Maintenance Operation shall be included in the pay item identified as "Maintenance of Traffic", LSUM.

GP 25 PROJECT STAFFING

The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the work and perform construction as required by the Contract Documents. The CONTRACTOR shall at all times maintain good discipline and order at the site.

GP 26 PROJECT RESPONSIBILITY

Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, and sanitary facilities and all other facilities and incidentals necessary for the furnishing, performance, start-up, and completion of the work.

GP 27 NON-DISCRIMINATION

In compliance with the Acts of Indiana General Assembly, 1933, Chapter 270, the CONTRACTOR hereby agrees:

That with respect to hire, tenure, terms, conditions, or privileges of employment of employees for the performance of work, under this Contract, or any Subcontract hereunder, no CONTRACTOR, Subcontractor, nor any person acting on behalf of such CONTRACTOR or Subcontractor shall, by reason of race, color, religion, sex, national origin, or ancestry discriminate against any citizen qualified to do work to which the employment relates;

That no CONTRACTOR, Subcontractor, no any person on his behalf shall, in any manner, discriminates against or intimidate any employee hired for the performance or work under this Contract on account of race, color, religion, sex, national origin, or ancestry;

That this Contract may be canceled or terminated by the OWNER, and all money due or to become due hereunder may be forfeited for a violation of the terms or conditions of this section of the Contract.

GP 28 CHANGES IN THE WORK

The OWNER, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

In giving instructions, the ENGINEER shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, not extra work or change shall be made unless in pursuance of a written order from the OWNER signed or countersigned by the ENGINEER, or a written order from the ENGINEER stating that the OWNER has authorized the extra work or change, and no claim for an addition to the contract sum shall be valid unless so ordered. The value of any such extra work or change shall be determined in one or more of the following ways:

- a) By estimate and acceptance in a lump sum
- b) By unit prices name in the contract or subsequently agreed upon
- c) By cost and percentage or by cost and a fixed fee

If none of the above methods is agreed upon, the CONTRACTOR provided he receives an order as above, shall proceed with the work. In such case and also under case (c), he shall keep and present in such form as the ENGINEER may direct, a correct amount of the cost, together with vouchers. In any case, the ENGINEER shall certify to the amount including reasonable allowance for overhead and profit, due to the CONTRACTOR. Pending final determination o value, payments on account of changes shall be made on the ENGINEER's certificate.

Should conditions encountered below the surface of the ground be a variance with the conditions indicated by the drawings and specifications, the contract sum shall be equitably adjusted upon claim by either party made within a reasonable time after the first observance of the conditions.

GP 29 DELETION OF WORK

The OWNER/ENGINEER has the right to delete any items that are a part of this contract.

GP 30 DELAY AND EXTENSION OF TIME

If the CONTRACTOR should be delayed at any time in the progress of the work by and act or neglect of the OWNER or the ENGINEER, or of any employee of either, or by any separate CONTRACTOR employed by the OWNER, or by changes ordered in the work, or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the CONTRACTOR'S control, or by delay authorized by the ENGINEER pending arbitration, or by any cause which the ENGINEER shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the ENGINEER may decide.

No such extension shall be made for delay occurring more than seven days before claim therefore is made in writing to the ENGINEER. In the case of continuing cause of delay, only one claim is necessary.

An extended date of completion will **only** be considered if the notice to proceed is not issued within 120 days of the letting except if the delay is due to the failure of the CONTRACTOR to furnish any stated or requested forms or information.

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SPECIAL PROVISIONS**SP 1 CONTRACT TIME**

The schedule for the completion of the work included in this contract including incidentals and clean up, shall be governed on a Calendar Completion Date Basis.

The Calendar Completion date for this contract shall be June 1, 2017. Construction for the 2-Stage Ditch at Taylor Creek Shall be completed by March 1, 2017.

SP2. ROAD CLOSURE

The CONTRACTOR shall limit the time that the road is closed to traffic on E256th Street to a maximum of **90** calendar days without written approval of an extension to this time from the OWNER.

The CONTRACTOR shall limit the time that the road is closed to traffic on Cal Carson Road to a maximum of **90** calendar days without written approval of an extension to this time from the OWNER.

Small Structure # 32028 (E. 256th Street) shall be constructed first and Cal Carson Street can be closed after bridge deck is poured for Small Structure # 32028. Both the streets can be closed simultaneously based upon the discretion and approval of the Engineer.

The CONTRACTOR shall provide the OWNER at least three weeks notice prior to closing each road. In no case shall the road be closed without prior consent from the OWNER.

SP3. PRIOR TO CLOSING ROADS TO TRAFFIC

The CONTRACTOR is to notify U.S. Post Office, rural fire departments, affected schools, local police agencies and Hamilton County Sheriff's Department, copy to ENGINEER. The XG20-5 Closure Signs are to be in place a minimum of two weeks prior to the actual closure.

SP4. AFTER OPENING ROADS TO TRAFFIC

The CONTRACTOR is to notify the U.S. Post Office, rural fire departments, affected schools, local police agencies and Hamilton County Sheriff's Department, copy to ENGINEER.

SP 5 HOLIDAYS THAT WORK IS NOT PERMITTED

The CONTRACTOR may not perform work on this project as mentioned in the most recent INDOT Standard Specifications and including the following days:

- All Saturday

At the discretion of the ENGINEER, CONTRACTOR shall be allowed to work on Saturday and Sunday, only if, CONTRACTOR submits in writing 72-hours in advance to the ENGINEER or specifically stated in the contract documents mentioned elsewhere herein.

SP 6 NOTICE TO PROCEED

The CONTRACTOR shall start to perform the work on the date designated in the written Notice to Proceed, but no work shall be done at the site prior to the date of the Notice to Proceed.

SP 7 EXISTING CONDITIONS

The CONTRACTOR shall verify the elevation and measurements of all points where new construction is to match existing conditions prior to the commencement of any construction activities.

Where new work is to be filled to old work, the CONTRACTOR shall check all dimensions and condition in the field and report any errors or discrepancies to the ENGINEER or assume responsibility for their correctness and the fit of new parts to old. If such parts do not fit properly, CONTRACTOR shall make at CONTRACTOR'S expense such alternations to new parts as may be necessary to assure proper fits and connection, which meet the approval of the ENGINEER.

No direct payment shall be made for this work but the cost thereof shall be included in the costs of other items of the contract.

SP 8 DISPOSAL OF EXCESS MATERIAL

All excess material not to be salvaged (waste) shall be removed from the project site. Whether a private or public waste site is utilized, such disposal shall comply with all Federal, State and local ordinances and permit requirements.

No direct payment will be made for this work but the cost thereof shall be included in the costs of the other items of the contract.

SP 9 TESTING OF MATERIALS

The CONTRACTOR shall be responsible for all testing and sampling of materials as hereinafter specified. The CONTRACTOR shall furnish certified tests for the following materials, which are to be made by an independent laboratory approved by the ENGINEER. The independent laboratory shall submit copies of all test results directly to the ENGINEER. Testing performed by an agent of a material producer or supplier will not be considered independent. The cost of providing samples and testing will not be paid for directly, but will be included in the cost of other items.

CONCRETE

Advance Concrete Tests: Concrete tests shall be conducted in accordance with A.S.T.M. Serial Des. C-39, for compliance with the requirements of these specifications.

Slump: For each 25 cubic yards or fraction thereof taken from forms.

Compression: The CONTRACTOR shall have tests made at a testing laboratory that is approved by the Engineer. The CONTRACTOR shall furnish to the Engineer all equipment and facilities necessary to prepare concrete test specimens. Three test cylinders 6" in diameter and 12" high will be made for each 100 cubic yard of each class of concrete or fraction thereof, placed each day. The CONTRACTOR shall properly crate and transport the cylinder test specimens to the approved laboratory.

The minimum compressive strength at 28 days shall be:

Class "A" Concrete, 3500 P.S.I.
Class "B" Concrete, 3000 P.S.I.
Class "C" Concrete, 4000 P.S.I.

One of the three test specimens shall be tested at 7 days and the remaining two specimens shall be tested at 28 days.

Concrete test specifications shall be in accordance with AASHTO Des. T-23; cylinder specimens shall be tested in accordance with AASHTO T-22, and test beams shall be treated in accordance with AASHTO Des. T-97.

If the CONTRACTOR desires to remove forms sooner than as specified in Article 702.13, he shall make 6x6x36 test beams to provide information for stripping forms. Equipment for testing these beams shall be furnished by the CONTRACTOR.

BITUMINOUS MATERIAL

The CONTRACTOR shall provide proof that all bituminous material used shall be of State tested material and on immediate usage basis. Class D certification required.

BORROW

The CONTRACTOR shall determine the location of the borrow pit and shall have laboratory density tests made as prescribed in Section 203.24 and outlined in AASHTO T-99. The subgrade shall be constructed in accordance with Section 207. No direct payment will be made for subgrade treatment. The cost of all work and testing for subgrade treatment shall be included in other items of the contract. Frequency of the density testing shall be every 100 ft for each lane of pavement per lift. Density testing for shoulder width greater than 6 feet shall be every 300 feet per lift.

REINFORCING STEEL

The CONTRACTOR shall furnish the Engineer with two (2) copies of certified mill test reports. Reinforcing steel shall comply with the requirements set out in Article 910.01. Grade 60 steel shall be used.

SP 10 GEOTECHNICAL INVESTIGATION

A Geotechnical investigation for this project site has been performed by Earth Exploration, Inc., Indianapolis, Indiana. This report presents the soil evaluation, Geotechnical recommendations and construction considerations for this project. Copies of the report can be found in Appendix B.

The ENGINEER assumes no responsibility for, nor makes and guarantees, as to the accuracy of the soils information.

CONTRACTOR shall determine to their own satisfaction the exact soil and groundwater conditions prior to submitting their bid.

SP 11 CROSSING PERMIT

The Hamilton County Surveyors Office has granted a Hamilton County Crossing Permit for this work. A copy of this permit is included in Appendix E. The Hamilton County Surveyors office is to be notified 48 hours prior to open drain construction at (317) 776-8495.

SP 12 UTILITY INFORMATION

All applicable sections for 105.06 and 107.18 shall apply except as amended elsewhere within the contract documents and as follows:

The utilities are beyond the control of the OWNER. Coordination with any applicable utility(s) is the sole responsibility of the CONTRACTOR. The CONTRACTOR shall identify and contact the affected utilities prior to the commencement of any activities.

The following is provided for information purposes only. The CONTRACTOR shall contact the following personnel or company to coordinate work prior to the commencement of any construction activities.

Utility Information	Contact	Telephone
Duke Energy (Distribution)	Cindy Rowland	(317) 776-5341
Duke Energy (Transmission)	Gary McNamee	(812) 447-2351
Frontier	Steve Costlow	(317) 984-9010

SP 13 PRE-CONSTRUCTION CONFERENCE

Before the CONTRACTOR is issued a Notice to Proceed, a conference attended by the OWNER, ENGINEER, CONTRACTOR and others as appropriate will be held. The purpose of this conference will be to discuss procedures for making submittals, processing applications for payment, and to establish other procedures and understandings bearing upon coordination and performance of the work.

- CONTRACTOR shall submit the following documents at the Pre-construction Conference:
 - Payment Bond as mentioned elsewhere herein
 - Performance Bond as mentioned elsewhere herein
 - Certification Letter as mentioned elsewhere herein
 - Certificate of Insurance as mentioned elsewhere herein
 - Specific Mix Design, Certification, and specification of material required to be submitted as mentioned elsewhere herein

CONTRACTOR shall not be allowed to proceed with any work until all the above-mentioned documents are submitted to the ENGINEER. Notice to proceed shall be issued as mentioned elsewhere herein and all work / calendars days shall be counted after issuance of Notice to Proceed. . This time frame also includes review and approval of any mix design and certification required as mention elsewhere herein. ENGINEER shall have minimum of 72-hours for review and approval of any mix design submitted.

SP 14 LIQUIDATED DAMAGES

Damages set out below are not meant to penalize the contractor, but to insure timely completion of this contract. It is the sole responsibility of the CONTRACTOR to thoroughly familiarize himself with these contract documents.

The CONTRACTOR shall pay One Thousand Dollars (\$1,000.00) for each calendar day after the permitted contract time has expired as setout elsewhere herein for failure to complete the work in accordance with this contract.

The CONTRACTOR shall also pay One Thousand Dollars (\$1,000.00) for each calendar day after the permitted 90 calendar days that the each road is closed to traffic.

The CONTRACTOR shall pay One Thousand Dollars (\$1,000.00) for each calendar /or portion thereof for failure to complete specific time sensitive operation, mentioned elsewhere herein, within the time frame allowed.

The CONTRACTOR shall pay Six Thousand Dollars (\$6,000.00) if the Construction for the 2-Stage Ditch at Taylor Creek is not completed by March 1, 2017. The CONTRACTOR shall pay one Thousand Dollars (\$1,000.00) for each calendar day after the permitted contract time has expired for completion of the 2-Stage Ditch at Taylor Creek.

If the CONTRACTOR exceeds any or all allotted time periods simultaneously, the assessed damages will be cumulative.

SP 15 PARTIAL PAYMENTS

Partial payments will be made once each month as the work progresses. Said payments will be based upon estimates prepared by the CONTRACTOR using the provided HCHD FORM 8049 and a County Claim Voucher and approved by the ENGINEER for the value of the work performed and materials complete in place in accordance with the contract, plans and specification. No partial payment will be made when the amount due the CONTRACTOR since the last estimate amounts to less than Five Hundred Dollars. From the total of the amount determined to be payable on a partial payment, ten percent of such total amount will be deducted and retained by the County until the final completion and acceptance of the work.

SP 16 FINAL PAYMENT

When the contract work has been completed in an acceptable manner in accordance with the terms of the contract, the CONTRACTOR will prepare a final estimate for the work and will furnish the ENGINEER with a copy thereof. Before final payment of the contract, the CONTRACTOR shall furnish the provided Affidavit and Waiver of Lien from all subcontractors, material suppliers and equipment suppliers who provided goods and/or services valued at \$500.00 or greater. Final payment will not be made until a final inspection has been made, the work has been accepted by the County and has met the requirements of Section 109.08 of the Indiana Department of Transportation Standard Specifications. The ENGINEER, acting for the Board of County Commissioners, will then certify to the County Auditor the balance due the CONTRACTOR, and said certificate will be deemed an acceptance of the completed contract by the OWNER.

SP 17 CLEARING RIGHT-OF-WAY SS # 32028 & 32059

Clearing Right-of-Way shall be in accordance with the requirements of Section 201 except as follows: The initial payment for clearing right-of-way will be limited to 5 percent of the original total bid. If the contract lump sum price for clearing right-of-way is greater than 5 percent of the original total bid, the amount over 5 percent will not be paid until the contract has been completed and accepted.

Trees, brush, debris, garbage, and other obstructions shall be cleared from right-of-way line to right-of-way line within the limits of the project, subject to any notes on the plans that identify specific trees or areas to remain undisturbed. Clearing is to include trimming all tree branches that overhang the right-of-way unless otherwise directed by the ENGINEER. The cost of tree and stump removal will not be paid for, but shall be included in the lump sum price for "Clearing Right-of-Way."

This item includes the removal of all existing pipes and all other drainage structures in accordance with Section 202, to be removed during this project.

SP 18 CHANNEL CLEARING

This work shall consist of but not limited to clearing channel to the existing flow line elevation (identified in the cross sectional view of the plans), removal of debris, vegetation, and various other material that is impeding the flow of the stream, or infringing onto the bridge roadway, from the channel, spill slopes, and bridge cones, as indicated in the detail drawing and/or as direct by the ENGINEER for SS#32028 & 32059 in accordance with Section 201. All suitable material removed from the stream, approved by the ENGINEER, shall be reused on the slope wall to acquire 2:1 slope.

All labor, material, equipment, disposal of material in a suitable manner, and other necessary work required for clearing the channel to existing flow line elevation shall be included in lump sum price for "Clearing Right-of-Way."

SP 19 PROTECTION OF FIELD TILE

All field tiles encountered and affected by the scope of work specified within the contract documents shall be given a positive outlet. Animal guards are required on the ends of all field tiles. The cost of all animal guards shall be included in the cost of the pipe.

The following pay items have been added to the contract and shall be installed at the direction of the ENGINEER.

- Pipe, Type 4, Circular, 6 in
- Pipe, Type 4, Circular, 8 in
- Pipe, Type 4, Circular, 10 in
- Pipe, Type 4, Circular, 12 in

Any tile outside the construction limits damaged by the *CONTRACTOR*'s operations shall be replaced by the *CONTRACTOR* at his own expense.

SP 20 EXCAVATION, WATERWAY

This work shall consist of excavating waterway to the depth as shown on the construction drawing to place revetment riprap in the stream and in accordance with Section 203.06. All material removed from the stream, approved by the ENGINEER, shall be reused on the slope wall to acquire 2:1 slope.

All labor, material, equipment, supervision, disposal of material, and other related work required to complete this shall be included in the pay item identified as "Excavation, Waterway", CYD.

SP 21 EXCAVATION, DRIVEWAY

Excavation and/or borrow required for driveway construction shall be included in the cost of other items.

SP 22 EMBANKMENT OVER EXISTING ROADBEDS

Placement of new embankment over the existing roadbed shall not be permitted. The existing pavement shall be removed entirely, or milled full-depth, spread and re-compacted prior to any fill being placed in the roadbed. The cost of removal of the existing pavement is included in the pay item "Excavation, Common".

SP 23 SEDIMENT BASIN

This work shall consist of installing, and maintaining sediment basin in accordance with Hamilton County Surveyor's Office. The sediment basin is to be cleaned out at the completion of construction and remain in place.

All necessary labor, material, equipment, supervision, maintenance, and other incidental construction, shall be included in the cost of "Sediment Basin", Each.

SP 24 RECONSTRUCT BRIDGE SLOPE AND CHANNEL

This work shall consist of but not limited to reconstructing bridge slopes and channel centerline by hand or machine method, or both, to required grade in accordance with these specifications and in reasonably close conformance with the elevations and cross sections shown on the plans or as directed by the ENGINEER. All spill slopes and channel centerline shall be constructed to the cross section shown on the plans.

It shall also include waterway excavation and clearing channel to the existing flow line elevation (refer to Cross Sectional view of the plans) in accordance with Section 201 and 203. Work shall include but not limited to removal of debris, vegetation, and various other material that is impeding the flow of the stream, or infringing onto the bridge roadway, from the channel, spill slopes, and bridge cones, as indicated in the detail drawing and/or as directed by the ENGINEER for SS 32028 & 32059 in accordance with Section 201. All suitable material removed from the stream, approved by the ENGINEER, reused on the slope wall to acquire 2:1 slope.

All necessary labor, material, equipment, construction engineering, elevation staking, supervision, suitable disposal of waste, necessary work required for clearing the channel to existing flow line elevation, and other incidental construction, shall be included in the lump sum price for "Clearing Right-of-Way."

SP 25 SURFACE MILLING, ASPHALT

This work shall consist of removal of existing bituminous asphalt pavement to the limits shown on the detail drawing and accordance with Section 306.00.

Milled material shall become property of the contractor and be properly disposed of as a part of this pay item. At the discretion of the ENGINEER, CONTRACTOR shall be allowed to use milling material to extend the shoulder beyond the project limit. Any damages to curbs or utilities will be the responsibility of the CONTRACTOR and shall repair or cause these items to be repaired at his own cost as directed by the engineer.

All labor, material, equipment, supervision and other related work required to complete this work shall be included in the pay item identified as "Surface Milling, Asphalt", SYS.

SP 26 PREPARATION OF EXISTING ROADWAYS

The CONTRACTOR shall clip the edges of the existing pavement prior to resurface as directed by the ENGINEER. After clipping, all debris shall be disposed of off site. If vegetation exists in cracks within the area to be paved, spraying of weed killer is required prior to resurface. Power sweep the road section immediately prior to resurface. Any debris, which does not come off the pavement by sweeping, shall be hand cleaned. . The cost of this work shall be included in the other items in the contract.

SP 27 HMA PAVEMENT

HMA mainline pavement and shoulder shall follow 2012 INDOT Standard Specification Section 402.

SP 28 SEEDING

If the seeding is placed outside the seasonal limitation requirement per INDOT Specification, then warranty Bond shall include all operations necessary for re-installation, including re-installation of erosion control blankets as specified on the plans.

SP 29 SEEDING OUTSIDE CONSTRUCTION LIMITS

Area which have been disturbed by construction and are outside the construction limits shall be seeded with seed mixture grass type 2 in accordance with 621.06(g) 2, or seed mixture legume type 2 in accordance with 621.06(h) 2, as directed.

No payment will be made for seeding required in areas outside the construction limits, which have been disturbed by construction.

SP 30 DETOUR ROUTE MARKER ASSEMBLY

This work shall consist of installation of Detour Route Marker Assembly, as indicated in the detail drawing, and in accordance with Section 801.05 of the Standard Specification.

CONTRACTOR shall be required to post detour sign (XM4-8), arrow marker (M6-1S), and other necessary marker required or directed by the ENGINEER. All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as “Detour Route Marker Assembly”, EACH.

SP 31 ROAD CLOSURE SIGN ASSEMBLY

This work shall consist of installation of Road Closure Sign Assembly shall be used with Type B Barricades and Type A Warning Lights, as indicated in the detail drawing and in accordance with Section 801.06, 801.07, and 801.14 of the Standard Specification.

All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as “Road Closure Sign Assembly”, EACH.

SP 32 SURVEYOR MARKER

Before the marker is disturbed, the Hamilton County Surveyor’s Office shall be notified seven (7) calendar days in advance in writing. Any marker disturbed or covered without the notification of the Hamilton County Surveyor’s Office or without the Engineer’s approval shall be repaired/reset at the CONTRACTOR’s expense.

SP 33 BENCHMARK

The CONTRACTOR shall install USGS benchmarks at Small Structures 32028 & 32059. This work is to be done in accordance with Section 105.08 and Section 615 of the INDOT Standard Specifications. The CONTRACTOR shall coordinate with the Hamilton County Surveyor’s Office (HCSO) for the location of the benchmark.

The HCSO will provide the CONTRACTOR with the new monument to be installed. In addition, the CONTRACTOR shall notify the HCSO 30 days prior to construction so that the necessary steps to offset an elevation may be taken. The CONTRACTOR shall submit to the HCSO (copy to ENGINEER) a letter from a Licensed Surveyor certifying this elevation.

The cost of all labor, materials and equipment necessary to complete this work shall be included in the cost of other items.

SP 34 IDEM NOTIFICATION FOR STRUCTURE REMOVAL

A bridge asbestos survey was performed by DLZ INDIANA, LLC. The Bridge Asbestos Survey Summary and IDEM Notification of Demolition are included in the Appendix C of contract documents for use by the CONTRACTOR. The CONTRACTOR shall complete the Notification of Demolition form and submit it to the Indiana Department of Environmental Management.

SP 35 PERMITS

Copies of all permits obtained by the OWNER are included in Appendix E as a part of the contract documents. According to the requirements of the governing agencies, the authorizations must be

conspicuously displayed at the project site and the CONTRACTOR shall perform his work in accordance with the conditions contained in all permits.

SP 36 OPEN BURNING OF NATURAL GROWTH

Open burning of natural growth will not be permitted on this contract.

SP 37 TREE AND LAWN PROTECTION

When constructing private drives, the CONTRACTOR shall use reasonable care for the protection of trees, shrubbery, fences, and lawn areas beyond the permanent right-of-way.

The cost of the protection or trimming and proper restoration of disturbed areas shall not be paid for directly, but shall be included in the cost of "Clearing Right-of-Way."

SP 38 RESTORATION OF DISTURBED AREAS

Cavities formed by the removal of shrubs, trees and/or stumps and located outside of proposed pavement areas shall be backfilled and compacted with "B" Borrow. Such compaction shall comply with Section 211.04. The top six (6) inches of the backfilled area shall be topsoil in accordance with Section 914.01.

Any roots remaining after all the removal of any designated item shall be removed to a depth of 6 inches below the surface of the surrounding ground area. The final preparation of these areas shall be in accordance with Section 621.

No direct payment shall be made for this work, but shall be included in the cost of other items.

SP 39 DEWATERING PLANS

The CONTRACTOR shall submit in writing a dewatering plan for the bridge installations prior to the beginning of work. The plan shall include a sketch showing the proposed location of any temporary pipes, causeways, sumps, etc. as well as text describing the method of handling both low-flow and high-flow conditions. The dewatering plan shall meet all OSHA requirements for safety at all times. Damming of the waterway without a provision for continuous flow in the case of pump failure will not be allowed.

If permits beyond those obtained in advance by the OWNER are required due to the method of dewatering, the CONTRACTOR shall obtain the necessary permits and provide copies of the permit applications and approvals to the ENGINEER. No work in the channel shall proceed until the CONTRACTOR has obtained the necessary permits, and has been directed to proceed by the ENGINEER.

All costs related to dewatering shall be included in the cost of other items.

SP 40 STRUCTURE BACKFILL

DESCRIPTION

This work consists of the placement of structure backfill behind the structure abutments and behind the wingwalls. The material to be used as structure backfill shall be No. 8 Stone in accordance with 904.05.

METHOD OF MEASUREMENT

Structure backfill will be measured by the cubic yard in accordance with the neat lines shown on the plans or as directed.

BASIS OF PAYMENT

The cost for delivery, placement, compaction, and all other necessary items associated with structure backfill shall be included in the cost of the Structural backfill pay item. Payment for structure backfill will be paid for at the contract unit price.

SP 41 EROSION CONTROL

The CONTRACTOR shall note that this project disturbs more than one acre of total land area and therefore falls within the Indiana Department of Environmental Management's (IDEM) Rule 5 Permit requirements. It is the CONTRACTOR'S responsibility to follow the requirements of this Rule 5 Permit.

The Soil Erosion Control Plans have been previously submitted to the Hamilton County Soil and Water Conservation District for their review and concurrence. A Notice of Intent (NOI) has been submitted to the Indiana Department of Environmental Management (IDEM). The CONTRACTOR shall be responsible for obtaining all authorized signatures from the County meeting the requirements of 327 IAC 15-5 for submission of the Notice of Termination (NOT). Upon completion of the construction work and final acceptance by the OWNER, the CONTRACTOR shall submit the NOT to the IDEM.

The cost of all items necessary to submit and comply with the requirements of the Rule 5 Permit shall not be paid for separately, but shall be included in the cost of other items.

REQUIREMENTS

The CONTRACTOR is responsible to implement and inspect all erosion control measures and practices in accordance with the plans, applicable requirements of 327 IAC 15-5-7 and 15-5-9, and erosion control guidelines of this specification. The erosion control measures and practices shall be implemented and inspected by personnel trained in erosion control practices provided by the CONTRACTOR. It shall be the sole responsibility of the CONTRACTOR to pay all fines incurred due to nonconformance with practices required herein.

Prior to any construction activity, the CONTRACTOR shall submit for review the sequence of the installation of the erosion control practices to the local soil and water conservation district (John South, Hamilton County Soil & Water Conservation District, 1717 Pleasant Street, Suite 100, Noblesville, IN 46060). This sequence shall be written in a format that describes the order of construction activities from station to station. The CONTRACTOR shall not begin any construction activity before the Hamilton County Soil & Water Conservation District has reviewed and approved the erosion control sequence.

The CONTRACTOR shall also submit to the Hamilton County Soil & Water Conservation District a spill prevention plan that will address how the CONTRACTOR will minimize the potential for spills, how the CONTRACTOR will provide for containment and an action plan in the event of a spill. The CONTRACTOR shall not begin any construction activity before the Hamilton County Soil & Water Conservation District has reviewed and approved the spill prevention plan.

The CONTRACTOR shall follow the INDOT Standard specifications and provisions for the placement of

Erosion Control Measures and for the construction procedure. No work in flowing water will be allowed. Cofferdams or stream diversion shall be used to prevent construction in flowing water. All disturbed stream banks need to be stabilized with appropriate armor or soft measures and stream flow should not occur on unstabilized or disturbed stream banks.

EROSION CONTROL GUIDELINES

1. Install all perimeter erosion control prior to any earth disturbing activity or the removal of any original vegetation.
2. Cut and seed side ditches and install erosion control blankets and install riprap ditch checks prior to mass grading operations.
3. All erosion control measures shall remain functioning until areas being controlled are either paved or seeded, as shown on plans.
4. Within 5 days after the drainage structures are in place, the riprap shall be installed.
5. All maintenance of erosion control measures shall be in conformance with the *Indiana Stormwater Quality Manual*. A copy of the *Indiana Stormwater Quality Manual* will be maintained at the Hamilton County Highway Department at all times.
6. All erosion control measures shall be inspected and a written report completed, that notes site deficiencies and corrective actions to be taken, after each 0.5" storm event as well as on a weekly basis, as a minimum or as directed by the *ENGINEER*.
7. The *CONTRACTOR* shall utilize as an interim measure, temporary seeding for any areas to be dormant for 15 days or more.
8. Permanent stabilization of all disturbed areas shall be installed within 15 days of the final grading of these areas. This includes all permanent seeding as shown in the plans.
9. All disturbed areas (i.e. stockpile/borrow) outside the project limits will be subject to applicable erosion control standards and should be in accordance with INDOT Standard Specifications and applicable Rule 5 requirements. An erosion control plan that meets the requirements of Rule 5 shall be submitted to (John South, Hamilton County Soil & Water Conservation District, 1717 Pleasant Street, Suite 100, Noblesville, IN 46060).
10. During periods in which borrow material will be brought into the site or the excavated material being hauled off from the project site, all the roadway effected shall be cleaned daily. Dirt clods or stone deposited on public roadways shall be cleaned immediately. The contractor shall use additional stone or wheel washers to prevent excess tracking onto public roads.
11. Any earthwork not shown on this plan will require a revised storm water pollution prevention plan.
12. Dewatering operations that pump sediment laden water will require a sediment bag to minimize the discharge of polluted water.

METHOD OF MEASUREMENT

All Temporary Erosion and Sediment Control will be measured in accordance with 205 unless noted otherwise.

BASIS OF PAYMENT

All Temporary Erosion and Sediment Control pay items will be paid for in accordance with 205. The cost of all items necessary to submit and comply with the requirements of the Temporary and Sediment Control requirements as indicated on the Contract Plans shall not be paid for separately, but shall be included in the cost of other items.

SP 42 R/W MARKERS

All new R/W markers placed along the proposed R/W line shall be placed flushed with the ground in all residential yards.

SP 43 TEMPORARY CULVERT PIPE PROTECTION**DESCRIPTION**

This work shall consist of the construction of a sediment control Rock Horseshoe at Structure #1 as detailed in the plans.

METHOD OF MEASUREMENT

Temporary culvert pipe protection will be measured by the number of units installed complete in place.

BASIS OF PAYMENT

The accepted quantities of temporary culvert pipe protection will be paid for at the contract unit price per each unit installed and in accordance with 205.07.

SP 44 TEMPORARY SEDIMENT TRAP**DESCRIPTION**

This work shall consist of the construction of a sediment trap at the locations detailed in the plans.

METHOD OF MEASUREMENT

Temporary sediment trap will be measured by the number of units installed complete in place.

BASIS OF PAYMENT

The accepted quantities of temporary sediment trap will be paid for at the contract unit price per each unit installed and in accordance with 205.07.

SP 45 UNDISTRIBUTED QUANTITIES FOR UNDERCUTTING AND REPLACEMENT

As discussed in the Geotechnical report, undistributed quantities for Common Excavation and Compacted Aggregate # 53 have been included in the contract for undercutting and replacement. Refer to Geotechnical report included in Appendix B for additional information.

Following undistributed quantities have been included in the Contract.

Pay Item	Unit Symbol	Quantity
Excavation, Common for undercutting	CYS.....	200
Compacted Aggregate # 53.....	TONS.....	100

SP 46 HIGH VOLTAGE TRANSMISSION LINE FOR DUKE ENERGY

Duke Energy has an existing High Voltage Transmission Line crossing 256th Street Just west of the Small Structure # 32028 (Bridge # 303). Duke Energy has a 100' easement for this transmission line that extends 50' on each side of the centerline of the transmission pole. Duke Energy's specifications for construction activities within the easement are included in Appendix F of the Contract documents. These specifications shall be followed during all the construction activities of this project.

SP 47 SURFACE SEAL

Surfaced to be sealed shall include the entire concrete structure that is to be thoroughly cleaned of all foreign materials by sandblasting or other INDOT approved method just prior to sealing. Surface Seal shall not take place until the OWNER or the ENGINEER have inspected the area and have approved of it. Concrete Sealer shall not be applied in any of the following weather conditions:

Rain

If rain is anticipated within 48 hour after application

Temperature is below the manufacturer recommendation.

All labor, material, equipment, and supervision required to complete this work shall be included in the pay item identified as "Surface Seal", LSUM.

SP 48 REINFORCED CONCRETE BRIDGE APPROACHES

The Standard Specifications are revised as follows:

SECTION 609, BEGIN LINE 10, INSERT AS FOLLOWS:

609.02 Materials

Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher, Size No. 53	904
Concrete, Class C*	702
Curing Materials.....	912.01
Joint Materials.....	906.02(a)1
Reinforcing Bars, Epoxy Coated.....	910.01
Support Devices.....	910.01(b)9
Surface Seal.....	709.02
<i>Threaded Tie Bar Assembly</i>	<i>910.01(b)2</i>

*Coarse Aggregate shall be Class AP, Size No. 8

SECTION 609, BEGIN LINE 127, INSERT AS FOLLOWS:

609.13 Method of Measurement

Reinforced concrete bridge approaches, including extensions required for bridge railing transitions, will be measured by the square yard. Dense graded subbase will be measured in accordance with 302.08. Reinforcing bars will be measured in accordance with 703.07. *Threaded tie bar assemblies will be measured in accordance with 703.07. Surface seal will be measured in accordance with 709.07.*

SECTION 609, BEGIN LINE 137, INSERT AS FOLLOWS:

609.14 Basis of Payment

Reinforced concrete bridge approaches, including extensions required for bridge railing transitions, will be paid for at the contract unit price per square yard. Dense graded subbase will be paid for in accordance with 302.09. Reinforcing bars will be paid for in accordance with 703.08. *Threaded tie bar assemblies will be paid for in accordance with 703.08. Surface seal will be paid for in accordance with 709.08.*

SP 49 GUARDRAIL TRANSITION TYPE TGS-1 & RAILING TS-1

Details for Guradrail Transition Type TGS-1 & Railing TS-1 have been included in Appendix G.

SP 50 DELINEATOR GUARDRAIL – HI-INTENSITY GRADE SHEETING

This work shall consist of installing Mono and/or Bi-directional traffic Guardrail Delineator furnished by Hamilton County Highway Department and installed by the CONTRACTOR. The ENGINEER shall mark delineator location.

This material shall be attached to the existing guardrail head bolt with recess nuts. The reflective color white shall be visible to the direction of adjacent traffic and amber shall be visible to the direction of opposite traffic.

All labor, material, equipment, supervision and other related work required to complete this work shall be included in the cost of other items mentioned elsewhere herein.

SP 51 GABIONS, METALLIC COATING**DESCRIPTION**

This item shall include all labor and material for furnishing, assembling and installing rock filled mesh gabion baskets. Gabions shall consist of rectangular wire mesh formed containers filled with rock. Gabions shall conform to the woven mesh type. For cage thickness up to 12 inches, gabions are required to be made of hexagonal triple twist mesh with heavily galvanized steel wire. For cage thickness of 12 inches or greater, the mesh is required to be hexagonal double twist mesh. The maximum linear dimension of the mesh opening may not exceed 5 inches. The area of the mesh opening is required to exceed 10 square inches. All perimeter edges or the mesh forming the gabion are required to be securely selvaged with wire. The wire is required to have a diameter of not less than 0.153 inches. The CONTRACTOR shall furnish two (2) copies of shop drawings for the proposed Gabian Baskets, to the Engineer for approval.

METHOD OF MEASUREMENT

Gabion Baskets will be measured by the cubic yard in accordance with the plans or as directed.

BASIS OF PAYMENT

All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as “GABIONS, METALLIC COATING”, CYS.

SP 52 TAYLOR CREEK SEED MIXTURE, TEMPORARY**DESCRIPTION**

This item shall include all labor and material for furnishing Temporary Seeding. Temporary Seeding shall be applied within the seeding limits in accordance with the plans. This mixture shall be placed at the overbanks of Taylor Creek. Temporary Seeding shall be installed for silt and erosion control protection with one of the following methods:

- A. Early Spring Mix: 100% Oats
Seeding Rate: 50 lbs./Acre
- B. Spring or Late Fall Mix: 100% Annual Rye
Seeding Rate: 50 lbs/Acre
- C. Fall Mix: 100% Perennial Rye
Seeding Rate: 50 lbs/Acre

Straw or mulch as approved by the Engineer shall be applied at a rate of 2 tons per acre. Inspect weekly and after each rainfall event. Reseed and remulch barren or stripped areas.

METHOD OF MEASUREMENT

Temporary Seeding Mixture will be measured by the pounds in accordance with the plans or as directed.

BASIS OF PAYMENT

All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as “TAYLOR CREEK SEED MIXTURE, TEMPORARY”, LBS.

SP 53 TAYLOR CREEK SEED MIXTURE, PERMANENT

DESCRIPTION

This item shall include all labor and material for furnishing permanent seeding. Permanent Seeding Mixture shall be applied within the seeding limits in accordance with the plans. This mixture shall be placed at the overbanks of Taylor Creek. Permanent Seeding shall consist of Kentucky Bluegrass 100 lbs./acre; plus 2 tons straw mulch/acre; or add annual Ryegrass 20 lbs./acre. Irrigation is needed during June, July, August and/or September.

METHOD OF MEASUREMENT

Permanent Seeding Mixture will be measured by the pounds in accordance with the plans or as directed.

BASIS OF PAYMENT

All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as “TAYLOR CREEK SEED MIXTURE, PERMANENT”, LBS.

SP 54 EXCAVATION, CHANNEL

DESCRIPTION

This work shall consist of but not limited to the excavation of the Taylor Creek Legal drain. Excavation shall be completed in accordance with INDOT Specifications Section 203.06, drawings and specifications. The excavation of the channel shall include the 20 foot wide channel, 8 foot bench, and low flow channel. Dimensions for the low flow channel shall be 1 foot deep and 2 feet wide with 2:1 side slopes and shall be centered below the 20 foot wide channel.

METHOD OF MEASUREMENT

Excavation, Channel will be measured by the cubic yards in accordance with the plans or as directed.

BASIS OF PAYMENT

All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as “EXCAVATION, CHANNEL”, CYS.

SP 55 CMP DROP STRUCTURE**DESCRIPTION**

This work shall consist of but not limited to the installation of the CMP drop structure. Work shall be completed in accordance with drawings and specifications. Materials shall include the trash rack, riprap, concrete pad, and 12" CMP and all other materials needed to install the drop structure. The trash rack shall be aluminum, and mounted using stainless steel hardware. Minimum dimensions shall be 12"x12" with a minimum thickness of 1-1/2". Bars will have a minimum diameter of 1/2". A hinged and lockable or boltable access panel shall be provided for the trash rack.

METHOD OF MEASUREMENT

CMP Drop Structure will be measured by each in accordance with the plans or as directed.

BASIS OF PAYMENT

All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as "CMP DROP STRUCTURE", EACH.

SP 56 DRAINAGE EASEMENT & RIGHT-OF-WAY LIMITS

CONTRACTOR shall perform no work outside the limits of the drainage easement for Taylor Creek or outside the limits of the right-of-way for either Cal Carson Road or E. 256th Street. Any damage to crops or properties outside the limits of the drainage easement or right-of-way shall be repaired by the CONTRACTOR at no cost to the County or property owners.

SP 57 TAYLOR CREEK FILTER STRIP**DESCRIPTION**

This work shall consist of but not limited to the installation of the 20' filter strip located to the north of Taylor Creek between both bridges. Work shall be completed in accordance with drawings and specifications. Materials shall include Orchard Grass 2 lb/acre, Timothy Grass 0.53 lb/acre, and Red Clover 3.56 lb/acre per the Indiana Specification Sheet included in Appendix H.

METHOD OF MEASUREMENT

The Taylor Creek Filter Strip will be measured by lbs in accordance with the plans or as directed.

BASIS OF PAYMENT

All labor, material, equipment, maintenance, and supervision required to complete this work shall be included in the pay item identified as "TAYLOR CREEK FILTER STRIP", LBS.

SP 58 STOCKPILES NEAR TAYLOR CREEK DITCH

CONTRACTOR shall deposit any dredged material from Taylor Creek Ditch in a contained upland disposal area to prevent sediment runoff to any waterbody. CONTRACTOR shall ensure that no silt enters Taylor Creek Ditch by providing a double silt fence in areas adjacent to the stockpile, making a 6" channel around the entire perimeter of the stockpile that is at least 18" deep, and seeding within 7 days of activity. Stockpiles are to be a maximum of 6 feet in height. CONTRACTOR shall coordinate with the Engineer for location of the stockpiles. As soon as spoils are stockpiled the traveled ground shall be loosened by dozer with soil ripper to a 12" depth to help reverse the heavy compaction resulting from vehicle paths. No Direct payment will be made for this work but the cost of this

work shall be included in the cost of other items of the Contract.

SP 59 PROTECTION OF DRAIN TILE

There is an existing 4" field drain tile located south of SS#32028 near the western limits of the stream. If required, this drain tile shall be daylighted to ensure continued flow towards the stream. No Direct payment will be made for this work but the cost of this work shall be included in the cost of other items of the Contract.

SP 60 UTILITY SERVICE TO PROPERTY OWNER

There shall not be any disruption of service including internet, electrical and phone to the Property owner located in the south-west corner of SS # 32028. Property Owner shall be informed in advance if there is any disruption in service so alternate arrangements can be made. No Direct payment will be made for this work but the cost of this work shall be included in the cost of other items of the Contract.

SP 61 PROTECTION OF WATER WELL

There is an existing water well located in the south-east corner of SS#32028. Extra care shall be taken during construction to ensure that there is no damage to this water well. No Direct payment will be made for this work but the cost of this work shall be included in the cost of other items of the Contract.

APPENDIX A

List of Standard Drawings

HAMILTON COUNTY SS# 32028 & 32059

STANDARD DRAWINGS INDEX

SEC.	CODE	PAGE	DRAWING SUBJECT (Drawing Title)	DRAWING CONTENTS (Code Meaning)	PUB DATE
205	TECD	01	Temporary Erosion Control Ditch	Temporary Check Dam, Revetment Rip Rap	9/4/2012
205	TECD	03	Temporary Erosion Control Ditch	Temporary Sediment Trap	9/4/2012
205	TECP	01	Temporary Erosion Control Perimeter	Temporary Construction Entrance	9/3/2013
205	TECP	02	Temporary Erosion Control Perimeter	Temporary Silt Fence	9/4/2012
211	BFIL	05	Bridge Fill	Backfill Placement at End Bent, Slab Structure	9/4/2012
601	CWGS	01	Curved W-Beam Guardrail System	Curved W-Beam Guardrail Connector System	9/4/2012
601	CWGS	02	Curved W-Beam Guardrail System	Curved W-Beam Guardrail System	9/4/2012
601	CWGS	03	Curved W-Beam Guardrail System	Curved W-Beam Guardrail System	9/4/2012
601	CWGS	04	Curved W-Beam Guardrail System	Curved W-Beam Guardrail System	9/1/2011
601	CWGS	05	Curved W-Beam Guardrail System	Curved W-Beam Guardrail System	4/1/1996
601	CWGS	06	Curved W-Beam Guardrail System	Curved W-Beam Guardrail System	9/4/2012
601	CWGT	01	Curved W-Beam Guardrail Terminal	Curved W-Beam Guardrail Terminal System	9/2/2003
601	CWGT	02	Curved W-Beam Guardrail Terminal	Curved W-Beam Guardrail Terminal System	3/1/2004
601	GRET	06	Guardrail End Treatment	Grading at Guardrail End Treatments	3/1/2004
601	WBG	01	W-Beam Guardrail Assemblies	W-Beam Guardrail Assemblies	9/1/2011
601	WBG	02	W-Beam Guardrail Assemblies	W-Beam Guardrail Assemblies	9/1/2011
601	WBG	03	W-Beam Guardrail Assemblies	W-Beam Guardrail Assemblies	9/1/1998
609	BRJT	01	Bridge Joint	Type 1A Joint	9/1/2005
610	DRIV	09	Drives	Class II & IV Sections	9/1/2010
610	DRIV	10	Drives	Class II, IV & V Drives Approach Grades	9/1/2010
610	DRIV	13	Drives	Drives General Notes & Legend	9/1/2010
611	MBAS	01	Mailbox Assembly	Single Mailbox Assembly	3/1/2005
611	MBAS	03	Mailbox Assembly	Mailbox Support Hardware	3/1/2005
611	MBAS	04	Mailbox Assembly	Elevation Views	3/1/2005
615	SLBM	01	Survey Line Bench Mark	Bench Mark Post	9/1/1997
701	BPIL	01	Bridge Pilings	Reinforced-Concrete Encasement for Piles	9/4/2012
701	BPIL	02	Bridge Pilings	Field Splicing Pipe Piles	9/4/2012
701	BPIL	03	Bridge Pilings	Steel H-Pile Splice	9/4/2012
701	BPIL	04	Bridge Pilings	Steel H-Pile Splice	9/4/2012
701	BPIL	05	Bridge Pilings	Alternate Steel H-Pile Mechanical Splice	9/4/2012
703	BRST	01	Bridge Reinforcing Steel	Bar Bending Details	9/4/2012
717	PHCL	01	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	02	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	03	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	04	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	05	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	06	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	07	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	08	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	09	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
717	PHCL	10	Pipe Height of Cover Limits	Pipe Height of Cover Limits	1/2/1998
801	TCDT	01	Traffic Control Detour	Rural Detour	9/1/2011
801	TCDT	03	Traffic Control Detour	Detour Route Marker Assemblies	3/3/2003
801	TCDV	04	Traffic Control Devices	Type III Barricade	9/3/2002
801	TCDV	05	Traffic Control Devices	Sign Placement Location	9/4/2012
801	TCDV	06	Traffic Control Devices	Type III Barricade Typical Applications	3/1/2005
801	TCDV	07	Traffic Control Devices	Type III Barricade Typical Applications	9/3/2002
801	TCSN	01	Traffic Control Signs	Traffic Control Signs	9/1/2010
801	TCSN	02	Traffic Control Signs	Traffic Control Signs	9/1/1997
801	TCSN	03	Traffic Control Signs	Traffic Control Signs	7/3/1995
801	TCSN	04	Traffic Control Signs	Traffic Control Signs	9/1/2010
801	TCSN	05	Traffic Control Signs	Traffic Control Signs	9/1/2010
801	TCSN	06	Traffic Control Signs	Traffic Control Signs	9/1/2011
801	TCSN	07	Traffic Control Signs	Traffic Control Signs	7/3/1995
801	TCSN	08	Traffic Control Signs	Traffic Control Signs	7/3/1995
801	TCSN	09	Traffic Control Signs	Traffic Control Signs	9/1/2010
801	TCSN	10	Traffic Control Signs	Traffic Control Signs	7/3/1995
801	TCSN	11	Traffic Control Signs	Construction Signs General Notes	9/1/2010
801	TCSN	12	Traffic Control Signs	Sign Design Details - 1 of 2	9/1/2011
801	TCSN	13	Traffic Control Signs	Sign Design Details	9/4/2012
801	TCSN	14	Traffic Control Signs	Temp. Panel Sign Break-away Post Installation	3/1/2002

APPENDIX B

Geotechnical Report

Geotechnical Reports

Section 1: Geotechnical Report – 256th Street over Taylor Creek

Section 2: Geotechnical Report – Cal Carson Road over Taylor
Creek

Section 3: Geotechnical Report – Taylor Creek Two-Stage Ditch
Design

Section 1:
Geotechnical Report – 256th Street over
Taylor Creek

GEOTECHNICAL EVALUATION

**256th STREET OVER TAYLOR CREEK
SS# 32028 (BRIDGE 303)
HAMILTON COUNTY, INDIANA**

Prepared for

**DLZ INDIANA, LLC
2211 EAST JEFFERSON BLVD
SOUTH BEND, INDIANA 46615**

By

**EARTH EXPLORATION, INC.
7770 WEST NEW YORK STREET
INDIANAPOLIS, INDIANA 46214-2988**

NOVEMBER 21, 2014

November 21, 2014

Mr. Michael A. Kummeth, P.E.
DLZ Indiana, LLC
2211 East Jefferson Blvd.
South Bend, IN 46615



7770 West New York Street
Indianapolis, IN 46214-2988
317-273-1690 (FAX) 317-273-2250

2204 Yankee Street
Niles, MI 49120
269-262-4320 or 574-233-6820
(FAX) 269-262-4479

Re: Geotechnical Evaluation
256th Street over Taylor Creek
SS# 32028 (Bridge 303)
Hamilton County, Indiana
EEI Project No. 1-14-506

Dear Michael:

We are pleased to submit our geotechnical evaluation for the above-referenced project. This report presents the results of our subsurface exploratory program and provides geotechnical recommendations for the proposed improvements. As you are aware, the work for this project was authorized via a work order dated October 9, 2014. For your information, we are enclosing three paper copies for your review and distribution and can provide additional copies, if requested. In addition, a copy was sent via electronic mail. Unless you notify us otherwise, we will retain the soil samples from the exploratory program for 60 days and then discard them.

The opinions and recommendations submitted in this report are based, in part, on our interpretation of the subsurface information revealed at the exploratory locations as indicated on an attached plan. Understandably, this report does not reflect variations in subsurface conditions between or beyond these locations. Therefore, variations in these conditions can be expected, and fluctuation of the groundwater levels will occur with time. Other important limitations of this report are discussed in Appendix A.

PROJECT DESCRIPTION

We understand that the commissioners of Hamilton County are planning to replace an existing small structure (i.e. SS# 32028) along 256th Street over Taylor Creek using local funds. Refer to Drawing No. 1-14-506.A1 in Appendix C for the location of the project. Based on preliminary plans provided by DLZ Indiana, LLC. (DLZ), the new structure will consist of a two-span bridge supported by driven steel piles with a hybrid of spill-through slopes, and an integral end bent at Bent 1. Based on our correspondence with DLZ, we understand that an uplift of 55 kips acts on Bent 1 under certain loading conditions. Also, we understand the scour elevation is at El. 853.16. In addition, we anticipate that the existing profile grade will be raised at the bridge location by approximately 1 to 1½ ft. Roadway improvements consisting of minor widening are also planned from approximately 320 ft west to 370 ft east of the bridge. The roadway widening will require reconstruction of the ditches near Station 15+50, and between Station 16+00 and Station 17+00. In general, sideslopes of 3 Horizontal: 1 Vertical (3H:1V) are planned. At this time, other information such as foundation

reactions, and construction schedule is not known. In the event that the nature, design or location of the proposed construction changes, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions are modified or confirmed in writing. Record drawings and information about the existing bridge was not provided.

FIELD EXPLORATION AND LABORATORY TESTING

Subsurface conditions for the proposed improvements were explored by performing two structure borings (designated TB-1 and TB-2) to a depth of about 70 ft below the existing ground surface and two road borings (designated RB-1 and RB-2) to a depth of 10 ft. Additionally, hand augers were performed in the ditches and widening areas to observed the approximate topsoil depth. The number, depth, and location of the borings and hand augers were determined by EEI in conjunction with DLZ. The exploratory locations were identified in the field by EEI personnel referencing identifiable features shown on the plans. Ground surface elevations at the exploratory locations were interpolated to the nearest foot based on topographic information provided in the aforementioned plans. The boring and sounding locations should be considered accurate only to the degree implied by the methods used.

Exploratory field activities were performed by EEI on October 17, 2014, using truck-mounted equipment. The exploratory activities were performed using hollow-stem augers to advance the borehole. Representative samples of the soil conditions were obtained at predetermined intervals using Standard Penetration Test (SPT) procedures (AASHTO T 206). After obtaining final groundwater observations, the exploratory locations were backfilled with a mixture of auger cuttings and bentonite chips, and a Portland cement concrete patch was placed at the ground surface. Additional details of the drilling and sampling procedures are provided in Appendix B.

Following the exploratory activities, the soil samples were visually classified by an EEI engineering technician and later reviewed by an EEI geotechnical engineer. After visually classifying the soils, representative samples were selected and submitted for laboratory testing. These tests included moisture content (AASHTO T 265), Atterberg limits (AASHTO T 89 and T 90), and hand penetrometer readings. The results of the tests are provided on the boring logs in Appendix C. For your information, soil descriptions on the boring log are in general accordance with the AASHTO system and the INDOT Standard Specifications (ISS¹) (textural classification, e.g., silty clay loam). The final boring log represents our interpretation of the individual samples and field log and results of the laboratory tests. The stratification lines on the boring log represents the approximate boundary between soil types; although, the transition may actually be gradual.

¹References the Indiana Department of Transportation (INDOT) Standard Specifications.

SITE CONDITIONS

Surface Conditions

The bridge is located in a rural area southwest of Arcadia. Based on our observations, the ground surface within the project limits is relatively flat to gently sloping with an exception at the "V" shaped channel of the creek. The surface conditions at the boring locations consisted of about 12 in. of asphaltic concrete pavement. Based on observations made during the hand auger activities, the topsoil in the grass area to the south of the road typically ranged between 4 and 16 in. in thickness, and the topsoil in the field to the north of the road typically ranged between 16 and 24 in. The results of the hand augers are provided in the Summary of Hand Augers in Appendix C.

Subsurface Conditions

Based on the information gathered during our field activities, the subsurface profile mainly consisted of cohesive soil (i.e., silty loam, silty clay loam, clay, sandy loam, and loam) with interbedded layers of granular soil (sandy loam, sand and gravel, and silt) that ranged in thickness from 2 ft to 10 ft and were observed at depths from below the surface conditions to the maximum depth explored (i.e., about 70 ft).

Based on our observations, the consistency of the cohesive soil was typically stiff to hard based on hand penetrometer readings generally ranging from 1 to greater than 4½ tons/sq ft (tsf), and the moisture content was in the range of 8 to 23 percent. However, very soft to soft soils were observed at Boring TB-1 between the depths of 3½ to 8 ft based on hand penetrometer readings ranging from less than ¼ tsf to about ½ tsf and moisture contents were in the range of 31 to 35 percent. Typically, the moisture content of a cohesive-type soil is indicative of the strength and deformational characteristics (i.e., for a given cohesive soil, the higher the moisture content the lower the strength and the greater the deformational characteristics). The soft conditions are likely due to an increase of moisture from the adjacent wet granular layers. The relative density of the granular soil was loose to dense based on N-values of 6 to 58 blows/ft (bpf).

Groundwater Conditions

Groundwater was initially observed at a depth of about 9 to 13 ft below the existing ground surface. Upon completion, groundwater was observed at a depth of about 6 to 7 ft. However, it should be noted that an artesian condition was observed at Boring TB-2 immediately upon completion of the drilling activities. The artesian condition was observed for several minutes until, it is anticipated, the borehole caved in and sealed off the flow of water. Three hours after the completion of the sampling activities at this location, a groundwater level of 10 ft below the ground surface was observed. Based on these observations and the subsurface conditions, it is our opinion that the initially observed level is likely perched and influenced by the level of the creek. This is also somewhat consistent with the generalized information published in a reference titled *Hydrogeologic Atlas of Aquifers in Indiana* (U.S. Geological Survey, Water-Resources Investigations Report 92-4142) which indicates the

groundwater in this area to be more than 200 ft below the existing ground surface. It should be noted that groundwater levels either perched or piezometric will vary due to changes in precipitation, infiltration, run-off, pumping rates of nearby wells (if any), level of the creek, and other hydrogeological factors.

DISCUSSION AND RECOMMENDATIONS

Based upon the test boring information and the proposed construction, the conditions are generally conducive for support of the proposed structure and roadway improvements. Based on the subsurface conditions (stiff to hard cohesive soil with interbedded medium dense to dense granular soils), we concur that the new bridge structure can be supported on a deep foundation scheme consisting of driven piles. Recommendations related to deep foundations and other design and construction considerations are provided in the following sections.

Bridge Foundation Considerations

Based on the subsurface conditions encountered at the exploratory locations, we recommend the use of 14-in. diameter steel encased concrete (SEC) piles. We understand that an LRFD approach will be used for bridge design. As such, the following table provides a summary of anticipated design and driving resistances. The SEC piles are anticipated to achieve driving resistance utilizing a combination of skin friction and end bearing on the underlying soils. Since the factored pile load(s) were not known, our analysis was based on the maximum nominal soil resistance per IDM Figure 408-3a. Table 1 below provides a summary of static and driving resistances and estimated pile tip elevations for 14-in. diameter SEC piles driven to their maximum nominal resistance.

TABLE 1. SUMMARY OF STATIC AND DRIVING RESISTANCES (14-IN. DIA. X 0.312 IN. SEC PILE)			
Geotechnical Resistance	Bent No. 1	Bent No. 2	Bent No. 3
Factored Design Resistance, R_r (kips)	231	231	231
Resistance Factor ¹ , ϕ_{dyn}	0.55	0.55	0.55
Downdrag Loads, DD (kips)	Negligible	NA	Negligible
Nominal Resistance, R_n (kips)	420	420	420
Downdrag Friction, R_{sdd} (kips)	Negligible	NA	Negligible
Scour Zone Friction, R_{sscour} (kips)	NA	3	NA
Nominal Driving Resistance, R_{ndr} (kips)	420	423	420
Estimated Pile Tip Elevation	813	818	818
¹ Verification of pile resistance to be performed via Indiana Standard Specifications 701.05(a). Note: For bents with four or fewer piles, the resistance factor should be reduced by 20% in accordance with AASHTO C10.5.5.2.3 and INDOT design manual. In either case, EEI should be contacted to verify the required driving resistance.			

We recommend an indicator pile at each bent location in accordance with the ISS.

Once the loads are known, we recommended that EEI be contacted to evaluate required driving resistances and estimated pile tip elevations. In addition, we recommend that EEI be retained during the driving operations to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations.

Seismic Considerations

In general, the soil profile at the bridge location consisted of stiff to very stiff conditions overlying shale. With this, it is our opinion that the conditions most-closely resemble Site Class D in accordance with Section 3.10.3.1 of the 2012 AASHTO LRFD Design Specifications. The site class along with the peak ground acceleration coefficient is used to determine the Seismic Zone. Using a Site Class C and the peak ground acceleration ($PGA = 0.045$) results in a seismic response parameter (S_{D1}) of 0.111. From Table 3.10.6-1, an S_{D1} of 0.111 indicates Seismic Zone 2.

Abutment and Wingwall Considerations

It is anticipated that the walls for Bent 1 will be constructed on shallow foundations. We anticipate the foundation subgrade to be near El. 861 at the location of the Bent 1. The soils observed at this elevation at Boring TB-1 consisted of very soft silty loam. Excessive differential settlement between the wingwall elements and the pile supported foundation is anticipated if foundations are constructed on these soft soils. Therefore, we recommend they be undercut to the stiff soils observed near El. 858. The foundation subgrade may be reestablished using properly compacted granular fill or a lean concrete, if desired. Fill placed with the intent of supporting foundation loads should be compacted to 100 percent of the maximum dry density as determined by AASHTO T 99. Provided the foundation subgrades for the wingwalls have been prepared as discussed, we recommend that foundations be proportioned for a factored bearing resistance of 3,000 lb/sq ft (psf). Additionally, an interface friction angle between the cast-in-place concrete and the soil may be assumed to be 24 degrees. Settlement is anticipated to be negligible.

It is recommended that B-Borrow be utilized to backfill these structures. For design purposes, an angle of internal friction (Φ) of 32 degrees, interaction friction angle (δ) of 17 degrees, and a material unit weight of 120 pounds/cu ft (pcf) may be considered. All backfill behind the walls should be placed to a minimum density of 95 percent of the maximum dry density as determined by AASHTO T 99. In addition, it is recommended that the granular soils used as backfill extend horizontally from the back of the wall a distance equal to half the wall height. Furthermore, compaction of backfill within 3 ft of the walls should be performed with a hand-guided compactor to avoid over-stressing.

Earthwork

Site Preparation

We recommend in areas to receive new pavement components or fill that topsoil, vegetation, wet or soft/loose near-surface soils, riprap, and existing pavement components be removed from within the construction limits. Available plans indicate that the existing roadside ditches will be relocated along a portion of the alignment. Note that the ditches did not contain water at the time of the field

activities. However, if water is present in the ditches at the time of construction, it will be necessary to dewater the ditches in order to perform the site preparation measures discussed in the following paragraphs.

In addition, soft wet soils should be anticipated in the base and sides of the existing ditches. The exact depth of the soft soils was not determined as part of this evaluation. We recommend a quantity of undercut (excavation) and B-Borrow be included in the contract documents to address soft subgrades in the ditches and other locations as necessary. Where utilities are relocated and ditches are filled, we recommend that the excavations be backfilled with B-Borrow in accordance with the ISS and compacted to 100 percent of the maximum density obtained in accordance with AASHTO T 99.

After removal of the aforementioned surface conditions, we recommend the exposed soils be observed and, if cohesive soils are present in areas of fill, be proof-rolled with a heavy rubber-tired vehicle (where feasible). The purpose of proof-rolling is to provide a first-order evaluation of how the subgrade is anticipated to react to construction traffic (e.g., during fill placement) and gain an additional understanding of how the subgrade will behave following construction. We also recommend that proof-rolling be observed by an EEI geotechnical engineer or engineering technician to evaluate the presence of soft areas of the subgrades. As previously mentioned, both stiff cohesive and dense granular soils were observed beneath the existing pavement materials at the boring locations. Where yielding subgrade areas are delineated in offset locations, however, we recommend that the soils be stabilized. In granular soils, provided they are dewatered (if needed), this can be accomplished by several passes with a vibratory roller. Weather conditions during the winter and spring months are not conducive to reducing the moisture content of cohesive soil via discing. Therefore, undercutting and replacement with granular soil (e.g., crushed stone) or moisture-conditioned cohesive soil (possibly in conjunction with high tensile modulus bi-axial geogrid) or chemical modification of the in-situ soil using lime, kiln dust, fly ash, cement or a combination thereof (depending on the soil type) could be considered; particularly if construction will take place during the winter or spring months. The final decision regarding subgrade improvement should be made at the time of construction based on the observed actual conditions.

Embankment Fill Placement and Compaction

We recommend that embankment fill used to raise grades be placed in loose lift thicknesses not exceeding 8 in. and be compacted to 95 percent of the maximum density obtained in accordance with AASHTO T 99 as specified in the ISS. However, as discussed previously, isolated areas should be backfilled with B-Borrow and compacted to 100 percent of the maximum density.

In our opinion, the soils as observed at the test boring locations should be suitable for reuse as embankment fill provided they are properly moisture conditioned. Based on our observations, the natural moisture content of the near-surface cohesive soils are likely at or above their optimum moisture content. Therefore, processing via continuous discing and drying (by aeration or chemical treatment) of the cohesive fill will be required before placement if these soils are utilized. Under some climatic conditions, such as cold or rainy weather, or in confined areas, adequate moisture conditioning may be difficult to achieve, and in this case, imported granular fill could be required to expedite construction activities.

Embankment Construction

Based on a review of the plans, sideslopes as steep as 3H:1V are anticipated in the reconstruction areas of the ditches. Global instability of the slopes is not of concern; however the performance of these slopes will be directly dependent on the subgrade preparation and quality of compaction achieved at the base and toe of the embankments, as previously discussed. Benches should be cut into any existing slopes steeper than 4H:1V before fill placement so as to key the new fill into the slope. In our opinion, benches having a minimum width of 10 ft should be cut into the new slope before new fill is placed. Where 10-ft wide benches are not feasible due to shallow embankment heights and/or granular conditions, 6-ft wide benches (i.e., minimum) are recommended. Scarifying of the slope will also aid in keying the new fill into the slope. To minimize sloughing and erosion, it is important to provide adequate compaction and erosion and sloughing protection at the face of the embankment via riprap.

If the site preparation activities take place in the wet (i.e. the ditches are not dewatered) sloughing and erosion of the constructed embankments should be anticipated. Riprap may be utilized to reduce this risk as well as address the maintenance issue associated with mowing. However, if movement (sloughing) of the embankment does occur, it may be necessary to periodically add riprap and/or relocate riprap that has shifted.

Spill-through Slopes

For design of the spill-through slopes, we concur with the use of the placement of an 18-in. thick layer of riprap on the slope and the use of a filter fabric to provide separation between the riprap and subgrade of the slope. In addition, we concur with the use of a minimum 2-ft wide key be provided at the toe of the riprap, for protection, and encased with filter fabric.

Based on observations of the soil conditions and the above discussion, it is our opinion that global instability of the proposed sideslopes are generally not of a concern, considering the existing embankment has been in place already.

Pavement Considerations

From our test boring observations, the existing pavement generally consists of about 12 in. of asphaltic concrete pavement. It is recommended that the existing pavement components and loose near-surface soils be removed from within the construction limits of areas to receive new pavement components. As previously discussed, we anticipate that the roadway reconstruction will require fill to establish grades. Thus, we anticipate that improvement of the subgrade can likely be accomplished within the range of pavement subgrade treatment discussed below.

Based on the information obtained at the test boring locations, the soils exposed after removal of the surface elements are anticipated to be granular. Consequently, we recommend subgrade preparation include compaction. Improvement of isolated soft conditions or existing fill could include moisture-control and re-compaction of the subgrade or undercutting and replacing with compacted "B" borrow as discussed previously. For estimating purposes, we recommend quantities be based on a maximum undercut depth of 2 ft over 20 percent of the subgrade area, to be used if necessary.

The type and need for subgrade improvement will be dependent on the actual conditions observed at the time of construction.

We anticipate that the roadway subgrade will consist of both cohesive and granular type soils. A CBR or resilient modulus tests (M_R) were not performed as part of this evaluation. We recommend the design be based on a cohesive subgrade, and the information in Table 2 on the following page be considered for pavement design.

Table 2: Pavement Design Parameters

M_r for Improved Subgrade	4,500 psi
M_r for Natural Subgrade	3,000 psi
Subgrade Treatment Type	Type III
Subgrade Material	Sandy Loam
Depth to Water	6 ft

The long-term performance of pavement is a function of routine maintenance (e.g., crack and joint sealing) which will be the responsibility of the owner to perform.

Additional Construction Considerations

Excavations

Relatively shallow excavations (i.e., less than 4 ft) in cohesive soils can likely be performed with near vertical sidewalls. Deeper excavations and/or excavations in the aforementioned granular soils will require bracing or adequate sideslopes to prevent sidewall collapse. The granular soils observed at this site may be considered Type C soils, and the cohesive soils may be considered Type B. We also recommend that excavated soil not be stockpiled immediately adjacent to the top of the excavation nor should equipment be allowed to operate too closely to excavations. Furthermore, all excavations should conform to Occupational Safety and Health Administration (OSHA) requirements.

Groundwater Control

Where excavations are performed above El. 863, groundwater infiltration into the excavation is anticipated to be manageable utilizing traditional sump pumps and pits to remove groundwater or surface water runoff. Dewatering for excavations below this elevation will likely require a greater number of pumps to maintain excavations in the dry. Dewatering demands will also be a function of the level of the creek at the time of construction.

CONCLUDING REMARKS

In closing, we recommend that EEI be provided the opportunity to review the final design and project specifications to confirm that earthwork and foundation requirements have been properly interpreted and implemented in the design and specifications. We also recommend that EEI be retained to provide construction observation services during the earthwork and foundation construction phases

Mr. Michael A. Kummeth, P.E.
DLZ Indiana, LLC
256th Street over Taylor Creek - Hamilton County, IN

November 21, 2014
Page 9

of the projects. This will allow us to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations. It will also allow design changes to be made in the event that subsurface conditions differ from those anticipated.

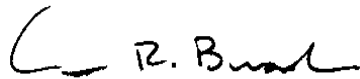
We appreciate the opportunity to provide our services to you on this project. Please contact our office if you have any questions or need further assistance with the project.

Sincerely,

EARTH EXPLORATION, INC.



Kellen P. Heavin, P.E.
Senior Geotechnical Engineer



Curtis R. Bradburn, P.E.
Senior Geotechnical Engineer

Attachments –

- APPENDIX A - Important Information about Your Geotechnical Report
- APPENDIX B - Field Methods for Exploring and Sampling Soils and Rock
- APPENDIX C - Exploratory Location Plan (Drawing No. 1-14-506.A1)
 - Log of Test Boring – General Notes
 - Log of Test Boring
 - Summary of Hand Augers

APPENDIX A

IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one—not even you*—should apply the report for any purpose or project except the one originally contemplated.

Read the full report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when

it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions *only* at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an *opinion* about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject To Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the

report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations", many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any *geoenvironmental* findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own *geoenvironmental* information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Rely on Your Geotechnical Engineer for Additional Assistance

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



8811 Colesville Road Suite G106 Silver Spring, MD 20910

Telephone: 301-565-2733 Facsimile: 301-589-2017

email: info@asfe.org www.asfe.org

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APPENDIX B

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger (AASHTO* Designation T251-77), a continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Penetration Test and Split-Barrel Sampling of Soils

(AASHTO* Designation: T206-87)

This method consists of driving a 2-inch outside diameter split-barrel sampler using a 140 pound weight falling freely through a distance of 30 inches. The sampler is first seated 6-inches into the material to be sampled and then driven 12 inches. The number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance or N-Value. The blow counts are reported on the Test Boring Records per 6 inch increment. Recovered samples are first classified as to texture by the driller. Later, in the laboratory the driller's classification is reviewed by a soils engineer who examines each sample.

C. Thin-walled Tube Sampling of Soils

(AASHTO* Designation: T207-87)

This method consists of pushing a 2-inch or 3-inch outside diameter thin wall tube by hydraulic or other means into soils, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings

(AASHTO* Designation: T203-82)

This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-foot intervals or with each change in the substrata. Relatively disturbed samples are obtained and its use is therefore limited to situations where it is satisfactory to determine approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation

(AASHTO* Designation: T225-83)

This method consists of advancing a hole in bedrock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-inch outside diameter by 2-inch inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Association of State Highway and Transportation Officials, Washington D.C.

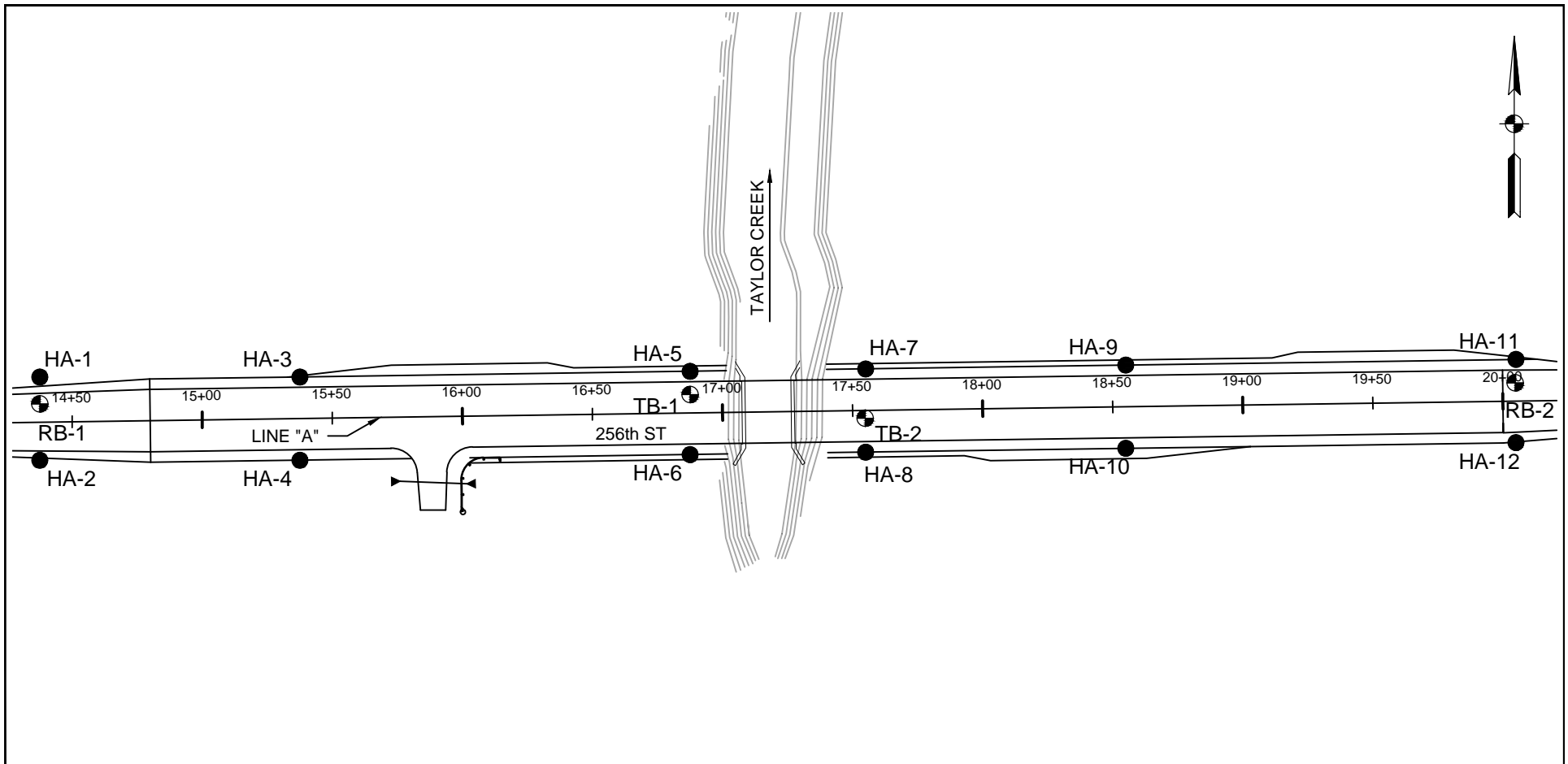
APPENDIX C

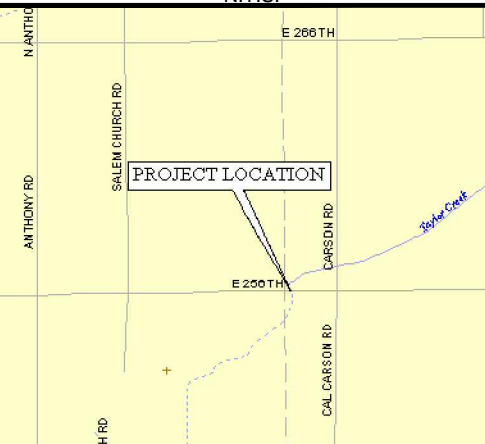


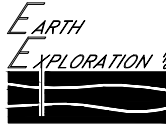
EXPLORATORY LOCATION PLAN
(Drawing No. 1-14-506.A1)

LOG OF TEST BORING - GENERAL NOTES

LOG OF TEST BORING

SUMMARY OF HAND AUGERS



VICINITY MAP N.T.S.	NOTES	LEGEND		
	<ol style="list-style-type: none">1. Base map developed from an electronic file provided by DLZ Indiana, LLC on November 3, 2014.2. Vicinity map generated using commercially-available software by DeLorme (Street Atlas USA ver. 7.0).3. Refer to the Log of Test Boring (4) and Summary of Hand Augers in Appendix C for a description of the subsurface conditions encountered at the exploratory locations.4. Borings and soundings were located in the field by Earth Exploration, Inc. on October 10, 2014.5. Exploratory locations are approximate.	RB-1 	Test Boring Location and Designation	
		HA-1 	Hand Auger Location and Designation	
		EXPLORATORY LOCATION PLAN		
		PROJECT: 256th Street over Taylor Creek	PROJECT ENG: KPH	 7770 West New York Street Indianapolis, IN 46214-2988 317-273-1690 (FAX) 317-273-2250
		LOCATION: Hamilton County, Indiana	APPROVED BY: MSW	
CLIENT: DLZ Indiana, LLC	DRAWN BY: JBF			
STRUCTURE NO.: 32028	DATE AND TIME: 11/4/14			
EEI PROJECT NO.: 1-14-506	DRAWING NO.: 1-14-506.A1			
SCALE: 1" = 60'				

LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3"
Gravel	4.76 mm to 75 mm	#10 to 75 mm
Sand: Course	2.00 to 4.76 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape
 fineness, etc.
Major Constituents
- Clay silt, sand, gravel
Structure
- Laminated, varved, fibrous,
 stratified, cemented, fissured,
 etc.

Geologic Origin
- Glacial, alluvial, eolian,
 residual, etc.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
------	----------------------------------

Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
------------------	-----

w/ trace organic matter	1 – 6 %
w/ little organic matter	7 – 12%
w/ some organic matter	13 – 18%
Organic Soil (A-8)	19 – 30%
Peat (A-8)	More than 30%

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	– Auger Sample
BS	– Bag Sample
C	– Casing Size 2½", NW, 4", HW
COA	– Clean-Out Auger
CS	– Continuous Sampling
CW	– Clear Water
DC	– Driven Casing
DM	– Drilling Mud
FA	– Flight Auger
FT	– Fish Tail
HA	– Hand Auger
HSA	– Hollow Stem Auger
NR	– No Recovery
PMT	– Borehole Pressuremeter Test
PT	– 3" O.D. Piston Tube Sample
PTS	– Peat Sample
RB	– Rock Bit
RC	– Rock Coring
REC	– Recovery
RQD	– Rock Quality Designation
RS	– Rock Sounding
S	– Soil Sounding
SS	– 2" O.D. Split-Barrel Sample
2ST	– 2" O.D. Thin-Walled Tube Sample
3ST	– 3" O.D. Thin-Walled Tube Sample
VS	– Vane Shear Test
WPT	– Water Pressure Test

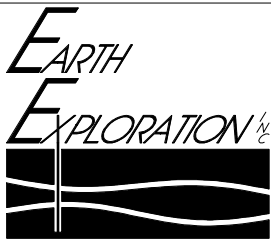
LABORATORY TESTS

q _p	– Penetrometer Reading, tsf
q _u	– Unconfined Strength, tsf
W	– Moisture Content, %
LL	– Liquid Limit, %
PL	– Plastic Limit, %
PI	– Plasticity Index
SL	– Shrinkage Limit, %
LOI	– Loss on Ignition, %
γ _d	– Dry Unit Weight, pcf
pH	– Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	– Backfilled upon Completion
NW	– No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.



LOG OF TEST BORING

Project **256th Street over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-1**
 Elevation **867**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-506**
 Sheet **1** of **3**

Project No. **---** Station **16+88** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32028** Offset **7 ft Lt. "A"** Temp. **60° F** Inspector **K.H.**

SAMPLE				Depth ft Elev	DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value			q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					ASPHALTIC CONCRETE, 12 in.							
SS-1	X	50	18	865	SANDY LOAM, with some gravel, hard, gray	4.0			6.6	18	14	4
SS-2	X	30	3	5		0.5			35.4			
SS-3	X	50	5	860	SILTY LOAM, very soft to stiff, brown to gray to gray below 8½'	<0.25			31.3			
SS-4	X	90	10	10		1.0			21.6			
SS-5	X	0	8	855	SANDY LOAM, loose to medium dense, wet, gray							
SS-6	X	80	21	15								
SS-7	X	40	36	850		>4.5			8.0			
SS-8	X	80	30	20	LOAM, hard to stiff, gray, with occasional wet sand seams	3.5			9.3			
SS-9	X	65	21	25		1.5			11.5			
SS-10	X	55	19	30	SAND AND GRAVEL, medium dense, wet, gray							

Continued Next Page

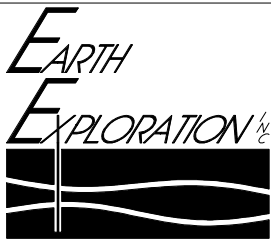
WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft	While Drilling	Upon Completion	3 hrs After Drilling
To Water	13	10	10
To Cave-in		50	46

Start **10/17/14** End **10/17/14** Rig **CME 750**
 Drilling Method **3¼" I.D. HSA ATV**
 Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **256th Street over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

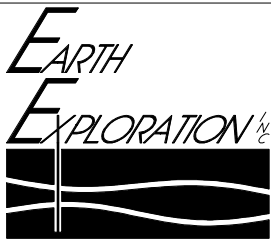
Boring No. **TB-1**
 Elevation **867**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-506**
 Sheet **2** of **3**

Project No. **---** Station **16+88** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32028** Offset **7 ft Lt. "A"** Temp. **60° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
				835	SAND AND GRAVEL , medium dense, wet, gray							
SS-11	X	30	38	35	SILT , dense, wet, gray							
				830								
SS-12	X	65	18	40	LOAM , hard to medium stiff, gray, with occasional wet sand seams	>4.5			8.6			
				825								
SS-13	X	55	11	45		0.75			11.1			
				820								
SS-14	X	100	14	50	SANDY LOAM , with some gravel, very dense, wet, gray	2.5			10.5			
				815								
SS-15	X	65	58	55								
				810	LOAM , hard, gray							
SS-16	X	55	83/0.7	60		>4.5			10.3			
				805								

Continued Next Page

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

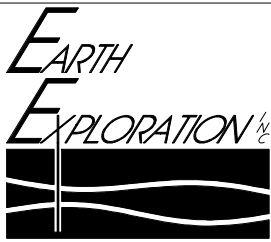
Project **256th Street over Taylor Creek**
Location **Hamilton County, Indiana**
Client **DLZ Indiana, LLC**
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-1**
Elevation **867**
Datum **NAVD 88**
EEI Proj. No. **1-14-506**
Sheet **3** of **3**

Project No. **---** Station **16+88** Weather **Cloudy** Driller **C.H.**
Struct. No. **32028** Offset **7 ft Lt. "A"** Temp. **60° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
SS-17	X	40	76/0.8	65	LOAM, hard, gray	>4.5			13.2			
				800								
SS-18	X	50	84/0.8		SANDY LOAM, and gravel, very dense, wet, gray							
					End of Boring at 69.8 ft							

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **256th Street over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-2**
 Elevation **867**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-506**
 Sheet **1** of **3**

Project No. **---** Station **17+55** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32028** Offset **3 ft Rt. "A"** Temp. **52° F** Inspector **K.H.**

SAMPLE				Depth ft Elev	DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value			q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					ASPHALTIC CONCRETE, 12 in.							
SS-1	X	65	22	865	SANDY LOAM, medium dense, moist, gray							
SS-2	X	35	5	5		1.0			28.2			
SS-3	X	35	2	860	SILTY CLAY LOAM, stiff, brown and gray	1.0			30.0			
SS-4	X	55	13	10	SAND AND GRAVEL, medium dense, wet, gray							
SS-5	X	65	15	855	SILT, medium dense to loose, wet, gray							
SS-6	X	65	9	15								
SS-7	X	80	18	850	SAND AND GRAVEL, medium dense, wet, gray							
SS-8	X	45	16	20		4.0			8.9			
SS-9	X	55	13	25	LOAM, hard to very stiff, gray	3.5			10.4			
SS-10	X	45	11	30		4.0			11.2			

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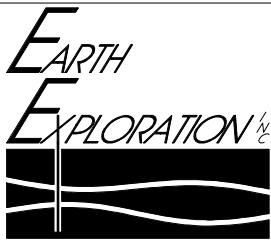
WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft ▽ While Drilling ▽ Upon Completion ▽ After Drilling
 To Water **10½** **6½** **BF**
 To Cave-in **37**

Start **10/17/14** End **10/17/14** Rig **CME 750**
 Drilling Method **3¼" I.D. HSA ATV**
 Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **256th Street over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

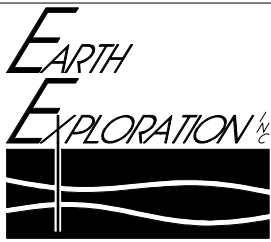
Boring No. **TB-2**
 Elevation **867**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-506**
 Sheet **2** of **3**

Project No. **---** Station **17+55** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32028** Offset **3 ft Rt. "A"** Temp. **52° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
				835	LOAM, hard to very stiff, gray							
SS-11	X	65	7	35	SAND, loose, wet, gray							
				830								
SS-12	X	80	20	40	LOAM, very stiff, gray	4.0			10.1			
				825								
SS-13	X	90	20	45		3.0			9.5			
				820	SAND AND GRAVEL, loose to dense, wet, gray							
SS-14	X	55	6	50								
				815								
SS-15	X	45	42	55								
				810	LOAM, hard, gray, with occasional wet sand seams							
SS-16	X	65	50/5	60		>4.5			11.4			
				805								

Continued Next Page

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

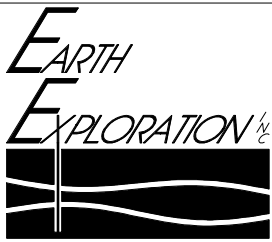
Project **256th Street over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-2**
 Elevation **867**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-506**
 Sheet **3** of **3**

Project No. **---** Station **17+55** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32028** Offset **3 ft Rt. "A"** Temp. **52° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
SS-17	X	35	60	65	LOAM, hard, gray, with occasional wet sand seams	>4.5			11.6			
				800								
SS-18	X	45	50/4		End of Boring at 69.4 ft *Note: Artesian conditions were noted shortly upon completion of the sampling activities. After the borehole caved in at 37 ft., a groundwater level of 6.5 ft was observed.	>4.5			12.9			

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **256th Street over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **RB-1**
 Elevation **867**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-506**
 Sheet **1** of **1**

Project No. **---** Station **14+38** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32028** Offset **7 ft Lt. "A"** Temp. **66° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					ASPHALTIC CONCRETE, 12 in.							
SS-1	X	35	10	865	SILTY LOAM, stiff, gray	2.0			19.2	26	20	6
SS-2	X	65	3	5	CLAY, stiff, brown and gray	1.25			35.4			
SS-3	X	80	12	860	SILTY LOAM, with some gravel, very stiff, gray, LOI = 1.1%, CaCO₃ - 28.9%	3.0			13.9			
SS-4	X	65	11	10	SANDY LOAM, medium dense, wet, gray							
					End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft ▽ While Drilling ▽ Upon Completion ▽ After Drilling

To Water **9** **7** **BF**

To Cave-in **8**

Start **10/17/14** End **10/17/14** Rig **CME 750**
 Drilling Method **3 1/4" I.D. HSA** **ATV**
 Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **256th Street over Taylor Creek**
Location **Hamilton County, Indiana**
Client **DLZ Indiana, LLC**
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. **RB-2**
Elevation **867**
Datum **NAVD 88**
EEI Proj. No. **1-14-506**
Sheet **1** of **1**

Project No. **---** Station **20+05** Weather **Cloudy** Driller **C.H.**
Struct. No. **32028** Offset **7 ft Lt. "A"** Temp. **66° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					ASPHALTIC CONCRETE, 12 in.							
SS-1	X	65	15	865	SANDY LOAM, medium dense, moist, brown							
SS-2	X	65	7	5	SILTY CLAY LOAM, stiff, gray	2.0			23.7			
SS-3	X	65	14	860		1.0			21.3			
SS-4	X	100	10	10	SANDY LOAM, stiff, gray	2.0			10.1			
					End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft ▽ While Drilling ▼ Upon Completion ▽ After Drilling
To Water **NW** **NW** **BF**
To Cave-in **8**

Start **10/17/14** End **10/17/14** Rig **CME 750**
Drilling Method **3 1/4" I.D. HSA** **ATV**
Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



SUMMARY OF HAND AUGERS

Project: 256th Street over Taylor Creek
Location: Hamilton County, Indiana
Structure No.: SS# 32028 (Bridge 303)
Client: DLZ Indiana, LLC
EEL Project No.: 1-14-506
Date: 11/11/2014
Method: Hand Auger

Hand Auger No.	Station	Offset Line	Approx. Ground Surface Elevation	Topsoil Depth (in)
HA-1	14+38	20 Lt "A"	865	24
HA-2	14+38	15 Rt "A"	865	12
HA-3	15+38	20 Lt "A"	865	16
HA-4	15+38	18 Rt "A"	864	4
HA-5	16+88	20 Lt "A"	865	24
HA-6	16+88	20 Rt "A"	864	16
HA-7	17+55	18 Lt "A"	865	18
HA-8	17+55	15 Rt "A"	865	8
HA-9	18+55	20 Lt "A"	866	18
HA-10	18+55	15 Rt "A"	865	6
HA-11	20+05	22 Lt "A"	865	24
HA-12	20+05	15 Rt "A"	867	6

Section 2:
Geotechnical Report – Cal Carson Road
over Taylor Creek

GEOTECHNICAL EVALUATION
CAL CARSON ROAD OVER TAYLOR CREEK
SS# 32059 (BRIDGE 304)
HAMILTON COUNTY, INDIANA

Prepared for

DLZ INDIANA, LLC
2211 EAST JEFFERSON BLVD
SOUTH BEND, INDIANA 46615

By

EARTH EXPLORATION, INC.
7770 WEST NEW YORK STREET
INDIANAPOLIS, INDIANA 46214-2988

NOVEMBER 21, 2014

November 21, 2014

Mr. Michael A. Kummeth, P.E.
DLZ Indiana, LLC
2211 East Jefferson Blvd.
South Bend, IN 46615



7770 West New York Street
Indianapolis, IN 46214-2988
317-273-1690 (FAX) 317-273-2250

2204 Yankee Street
Niles, MI 49120
269-262-4320 or 574-233-6820
(FAX) 269-262-4479

Re: Geotechnical Evaluation
Cal Carson Road over Taylor Creek
SS# 32059 (Bridge 304)
Hamilton County, Indiana
EEI Project No. 1-14-507

Dear Michael:

We are pleased to submit our geotechnical evaluation for the above-referenced project. This report presents the results of our subsurface exploratory program and provides geotechnical recommendations for the proposed improvements. As you are aware, the work for this project was authorized via a work order dated October 9, 2014. For your information, we are enclosing three paper copies for your review and distribution and can provide additional copies, if requested. In addition, a copy was sent via electronic mail. Unless you notify us otherwise, we will retain the soil samples from the exploratory program for 60 days and then discard them.

The opinions and recommendations submitted in this report are based, in part, on our interpretation of the subsurface information revealed at the exploratory locations as indicated on an attached plan. Understandably, this report does not reflect variations in subsurface conditions between or beyond these locations. Therefore, variations in these conditions can be expected, and fluctuation of the groundwater levels will occur with time. Other important limitations of this report are discussed in Appendix A.

PROJECT DESCRIPTION

We understand that the commissioners of Hamilton County are planning to replace an existing small structure (i.e. SS# 32059) along Cal Carson Road over Taylor Creek using local funds. Refer to Drawing No. 1-14-507.A1 in Appendix C for the location of the project. Based on preliminary plans provided by DLZ Indiana, LLC (DLZ), the new structure will consist of a three-span bridge supported by driven steel piles with spill-through slopes constructed at a 20 degree skew. Also, we understand the scour elevation is at El. 849.73. In addition, we anticipate that the existing profile grade will be raised at the bridge location by approximately 3½ ft. Roadway improvements consisting of minor widening are also planned from approximately 330 ft south to about 445 ft north of the bridge. The anticipated traffic volume for 2034 was provided as 493 vehicles per day. The roadway widening will require reconstruction of the ditches between Station 52+60 and Station 55+00, as well as between Station 58+50 and Station 60+00. In general, sideslopes of 3 Horizontal: 1 Vertical (3H:1V) are

planned. At this time, other information such as foundation reactions, and construction schedule is not known. In the event that the nature, design or location of the proposed construction changes, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions are modified or confirmed in writing. Record drawings and information about the existing bridge was not provided.

FIELD EXPLORATION AND LABORATORY TESTING

Subsurface conditions for the proposed improvements were explored by performing two structure borings (designated TB-1 and TB-2) to a depth of about 70 ft below the existing ground surface and two road borings (designated RB-1 and RB-2) to a depth of 10 ft. Additionally, hand augers were performed in the ditches and widening areas to observed the approximate topsoil depth. The number, depth, and location of the borings and hand augers were determined by EEI in conjunction with DLZ. The exploratory locations were identified in the field by EEI personnel referencing identifiable features shown on the plans. Ground surface elevations at the exploratory locations were interpolated to the nearest foot based on topographic information provided in the aforementioned plans. The boring and sounding locations should be considered accurate only to the degree implied by the methods used.

Exploratory field activities were performed by EEI on October 18, 2014, using truck-mounted equipment. The exploratory activities were performed using hollow-stem augers to advance the borehole. Representative samples of the soil conditions were obtained at predetermined intervals using Standard Penetration Test (SPT) procedures (AASHTO T 206). After obtaining final groundwater observations, the exploratory locations were backfilled with a mixture of auger cuttings and bentonite chips, and a Portland cement concrete patch was placed at the ground surface. Additional details of the drilling and sampling procedures are provided in Appendix B.

Following the exploratory activities, the soil samples were visually classified by an EEI engineering technician and later reviewed by an EEI geotechnical engineer. After visually classifying the soils, representative samples were selected and submitted for laboratory testing. These tests included moisture content (AASHTO T 265), Atterberg limits (AASHTO T 89 and T 90), loss on ignition (LOI, AASHTO T 267), and hand penetrometer readings. In addition, unconfined compression tests (AASHTO T 208) were performed on select cohesive samples. The results of the tests are provided on the boring logs and on laboratory sheets in Appendix C. For your information, soil descriptions on the boring log are in general accordance with the AASHTO system and the INDOT Standard Specifications (ISS¹) (textural classification, e.g., clay loam). The final boring log represents our interpretation of the individual samples and field log and results of the laboratory tests. The stratification lines on the boring log represents the approximate boundary between soil types; although, the transition may actually be gradual.

¹References the Indiana Department of Transportation (INDOT) Standard Specifications.

SITE CONDITIONS

Surface Conditions

The bridge is located in a rural area southwest of Arcadia. Based on our observations, the ground surface within the project limits is relatively flat to gently sloping with an exception at the "V" shaped channel of the creek. The surface conditions at the boring locations consisted of about 5 in. of asphaltic concrete pavement. Based on observations made during the hand auger activities, the topsoil in the field to the west of the road typically ranged between 8 and 12 in. in thickness, and the topsoil in the grass area to the east of the road typically ranged between 8 and 10 in. The results of the hand augers are provided in the Summary of Hand Augers in Appendix C.

Subsurface Conditions

Based on the information gathered during our field activities, the subsurface profile mainly consisted of cohesive soil (i.e., silty loam, silty clay loam, clay, sandy loam, and loam) with interbedded layers of granular soil (sand and gravel and silt) that ranged in thickness from 3½ ft to 9 ft and were observed at depths between 6 and 37 ft.

Based on our observations, the consistency of the cohesive soil was typically stiff to hard based on hand penetrometer readings generally ranging from 1 to greater than 4½ tons/sq ft (tsf), and the moisture content was in the range of 8 to 23 percent. However, soft soils were observed at Boring RB-2 between the depths of 3 to 6 ft based on a hand penetrometer reading of ¼ tsf and a moisture content of about 25 percent. Unconfined compression tests performed on split-spoon samples of the cohesive soils indicated peak undrained shear strengths (i.e. using the $\phi=0$ concept) ranging from 1.66 to 8.99 kips/sq. ft (ksf) at axial strains of 9 to 15 percent. Typically, the moisture content of a cohesive-type soil is indicative of the strength and deformational characteristics (i.e., for a given cohesive soil, the higher the moisture content the lower the strength and the greater the deformational characteristics). The relative density of the granular soil was loose to very dense based on N-values of 9 to 95 blows/ft (bpf).

Groundwater Conditions

Groundwater was initially observed at a depth of about 16 to 28½ ft below the existing ground surface. Upon completion, groundwater was observed at a depth of about 4 to 5 ft. Based on these observations and the subsurface conditions, it is our opinion that the observed levels are likely perched and influenced by the level of the creek. This is also somewhat consistent with the generalized information published in a reference titled *Hydrogeologic Atlas of Aquifers in Indiana* (U.S. Geological Survey, Water-Resources Investigations Report 92-4142) which indicates the groundwater in this area to be more than 200 ft below the existing ground surface. It should be noted that groundwater levels either perched or piezometric will vary due to changes in precipitation, infiltration, run-off, pumping rates of nearby wells (if any), level of the creek, and other hydrogeological factors.

DISCUSSION AND RECOMMENDATIONS

Based upon the test boring information and the proposed construction, the conditions are generally conducive for support of the proposed structure and roadway improvements. Based on the subsurface conditions (stiff to hard cohesive soil with interbedded loose to dense granular soils), we concur that the new bridge structure can be supported on a deep foundation scheme consisting of driven piles. Recommendations related to deep foundations and other design and construction considerations are provided in the following sections.

Bridge Foundation Considerations

Based on the subsurface conditions encountered at the exploratory locations, we recommend the use of steel H-piles. We understand that an LRFD approach will be used for bridge design. As such, the following table provides a summary of anticipated design and driving resistances. The H-piles are anticipated to achieve driving resistance utilizing a combination of skin friction and end bearing on the underlying soils. Since the factored pile load(s) were not known, our analysis was based on the maximum nominal soil resistance per IDM Figure 408-3a. Table 1 below provides a summary of static and driving resistances and estimated pile tip elevations for HP 12x53 H-piles driven to their maximum nominal resistance.

TABLE 1. SUMMARY OF STATIC AND DRIVING RESISTANCES (HP 12x53)				
Geotechnical Resistance	Bent No. 1	Bent No. 2	Bent No. 3	Bent No. 4
Factored Design Resistance, R_r (kips)	234	234	234	234
Resistance Factor ¹ , ϕ_{dyn}	0.55	0.55	0.55	0.55
Downdrag Loads, DD (kips)	Negligible	NA	NA	Negligible
Nominal Resistance, R_n (kips)	426	426	426	426
Downdrag Friction, R_{sdd} (kips)	Negligible	NA	NA	Negligible
Scour Zone Friction, R_{sscour} (kips)	NA	25	50	NA
Nominal Driving Resistance, R_{ndr} (kips)	426	451	476	426
Estimated Pile Tip Elevation	820	816	815	820
¹ Verification of pile resistance to be performed via Indiana Standard Specifications 701.05(a). Note: For bents with four or fewer piles, the resistance factor should be reduced by 20% in accordance with AASHTO C10.5.5.2.3 and INDOT design manual. In either case, EEI should be contacted to verify the required driving resistance.				

We recommend an indicator pile at each bent location in accordance with the ISS.

Once the loads are known, we recommended that EEI be contacted to evaluate required driving resistances and estimated pile tip elevations. In addition, we recommend that EEI be retained during

the driving operations to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations.

Seismic Considerations

In general, the soil profile at the bridge location consisted of stiff to very stiff conditions overlying shale. With this, it is our opinion that the conditions most-closely resemble Site Class D in accordance with Section 3.10.3.1 of the 2012 AASHTO LRFD Design Specifications. The site class along with the peak ground acceleration coefficient is used to determine the Seismic Zone. Using a Site Class C and the peak ground acceleration (PGA = 0.045) results in a seismic response parameter (S_{D1}) of 0.111. From Table 3.10.6-1, an S_{D1} of 0.111 indicates Seismic Zone 2.

Earthwork

Site Preparation

We recommend in areas to receive new pavement components or fill that topsoil, vegetation, wet or soft/loose near-surface soils, riprap, and existing pavement components be removed from within the construction limits. Available plans indicate that the existing roadside ditches will be relocated along a portion of the alignment. Note that the ditches did not contain water at the time of the field activities. However, if water is present in the ditches at the time of construction, it will be necessary to dewater the ditches in order to perform the site preparation measures discussed in the following paragraphs.

In addition, soft wet soils should be anticipated in the base and sides of the existing ditches. The exact depth of the soft soils was not determined as part of this evaluation. We recommend a quantity of undercut (excavation) and B-Borrow be included in the contract documents to address soft subgrades in the ditches and other locations as necessary. Where utilities are relocated and ditches are filled, we recommend that the excavations be backfilled with B-Borrow in accordance with the ISS and compacted to 100 percent of the maximum density obtained in accordance with AASHTO T 99.

After removal of the aforementioned surface conditions, we recommend the exposed soils be observed and, if cohesive soils are present in areas of fill, be proof-rolled with a heavy rubber-tired vehicle (where feasible). The purpose of proof-rolling is to provide a first-order evaluation of how the subgrade is anticipated to react to construction traffic (e.g., during fill placement) and gain an additional understanding of how the subgrade will behave following construction. We also recommend that proof-rolling be observed by an EEI geotechnical engineer or engineering technician to evaluate the presence of soft areas of the subgrades. As previously mentioned, both stiff cohesive and dense granular soils were observed beneath the existing pavement materials at the boring locations. Where yielding subgrade areas are delineated in offset locations, however, we recommend that the soils be stabilized. In granular soils, provided they are dewatered (if needed), this can be accomplished by several passes with a vibratory roller. Weather conditions during the winter and spring months are not conducive to reducing the moisture content of cohesive soil via discing. Therefore, undercutting and replacement with granular soil (e.g., crushed stone) or moisture-conditioned cohesive soil (possibly in conjunction with high tensile modulus bi-axial geogrid)

or chemical modification of the in-situ soil using lime, kiln dust, fly ash, cement or a combination thereof (depending on the soil type) could be considered; particularly if construction will take place during the winter or spring months. The final decision regarding subgrade improvement should be made at the time of construction based on the observed actual conditions.

Embankment Fill Placement and Compaction

We recommend that embankment fill used to raise grades be placed in loose lift thicknesses not exceeding 8 in. and be compacted to 95 percent of the maximum density obtained in accordance with AASHTO T 99 as specified in the ISS. However, as discussed previously, isolated areas should be backfilled with B-Borrow and compacted to 100 percent of the maximum density.

In our opinion, the soils as observed at the test boring locations should be suitable for reuse as embankment fill provided they are properly moisture conditioned. Based on our observations, the natural moisture content of the near-surface cohesive soils are likely at or above their optimum moisture content. Therefore, processing via continuous discing and drying (by aeration or chemical treatment) of the cohesive fill will be required before placement if these soils are utilized. Under some climatic conditions, such as cold or rainy weather, or in confined areas, adequate moisture conditioning may be difficult to achieve, and in this case, imported granular fill could be required to expedite construction activities.

Embankment Construction

Based on a review of the plans, sideslopes as steep as 3H:1V are anticipated in the reconstruction areas of the ditches. Global instability of the slopes is not of concern; however the performance of these slopes will be directly dependent on the subgrade preparation and quality of compaction achieved at the base and toe of the embankments, as previously discussed. Benches should be cut into any existing slopes steeper than 4H:1V before fill placement so as to key the new fill into the slope. In our opinion, benches having a minimum width of 10 ft should be cut into the new slope before new fill is placed. Where 10-ft wide benches are not feasible due to shallow embankment heights and/or granular conditions, 6-ft wide benches (i.e., minimum) are recommended. Scarifying of the slope will also aid in keying the new fill into the slope. To minimize sloughing and erosion, it is important to provide adequate compaction and erosion and sloughing protection at the face of the embankment via riprap.

If the site preparation activities take place in the wet (i.e. the ditches are not dewatered) sloughing and erosion of the constructed embankments should be anticipated. Riprap may be utilized to reduce this risk as well as address the maintenance issue associated with mowing. However, if movement (sloughing) of the embankment does occur, it may be necessary to periodically add riprap and/or relocate riprap that has shifted.

Spill-through Slopes

For design of the spill-through slopes, we concur with the use of the placement of an 18-in. thick layer of riprap on the slope and the use of a filter fabric to provide separation between the riprap and

subgrade of the slope. In addition, we concur with the use of a minimum 2-ft wide key be provided at the toe of the riprap, for protection, and encased with filter fabric.

Based on observations of the soil conditions and the above discussion, it is our opinion that global instability of the proposed sideslopes are generally not of a concern, considering the existing embankment has been in place already.

Pavement Considerations

From our test boring observations, the existing pavement generally consists of about 5 in. of asphaltic concrete pavement. It is recommended that the existing pavement components and loose near-surface soils be removed from within the construction limits of areas to receive new pavement components. As previously discussed, we anticipate that the roadway reconstruction will require fill to establish grades. Thus, we anticipate that improvement of the subgrade can likely be accomplished within the range of pavement subgrade treatment discussed below.

Based on the information obtained at the test boring locations, the soils exposed after removal of the surface elements are anticipated to be cohesive. Consequently, we recommend subgrade preparation include proofrolling in accordance with the ISS. Improvement of isolated soft conditions or existing fill could include moisture-control and re-compaction of the subgrade or undercutting and replacing with compacted "B" borrow as discussed previously. For estimating purposes, we recommend quantities be based on a maximum undercut depth of 2 ft over 20 percent of the subgrade area, to be used if necessary. The type and need for subgrade improvement will be dependent on the actual conditions observed at the time of construction.

We anticipate that the roadway subgrade will consist of cohesive type soils. A CBR or resilient modulus tests (M_R) were not performed as part of this evaluation. We recommend the design be based on a cohesive subgrade, and the information in Table 2 below be considered for pavement design.

Table 2: Pavement Design Parameters

M_r for Improved Subgrade	4,500 psi
M_r for Natural Subgrade	3,000 psi
Subgrade Treatment Type	Type III
Subgrade Material	Clay
Depth to Water	4 ft

The long-term performance of pavement is a function of routine maintenance (e.g., crack and joint sealing) which will be the responsibility of the owner to perform.

Additional Construction Considerations

Excavations

Relatively shallow excavations (i.e., less than 4 ft) in cohesive soils can likely be performed with near vertical sidewalls. Deeper excavations and/or excavations in the aforementioned granular soils will require bracing or adequate sideslopes to prevent sidewall collapse. The granular soils observed at this site may be considered Type C soils, provided they are dewatered prior to excavation, and the cohesive soils may be considered Type B. We also recommend that excavated soil not be stockpiled immediately adjacent to the top of the excavation nor should equipment be allowed to operate too closely to excavations. Furthermore, all excavations should conform to Occupational Safety and Health Administration (OSHA) requirements.

Groundwater Control

Where excavations are performed above El. 866, groundwater infiltration into the excavation is anticipated to be manageable utilizing traditional sump pumps and pits to remove groundwater or surface water runoff. Dewatering for excavations below this elevation will likely require a greater number of pumps to maintain excavations in the dry. Dewatering demands will also be a function of the level of the creek at the time of construction.

CONCLUDING REMARKS

In closing, we recommend that EEI be provided the opportunity to review the final design and project specifications to confirm that earthwork and foundation requirements have been properly interpreted and implemented in the design and specifications. We also recommend that EEI be retained to provide construction observation services during the earthwork and foundation construction phases of the projects. This will allow us to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations. It will also allow design changes to be made in the event that subsurface conditions differ from those anticipated.

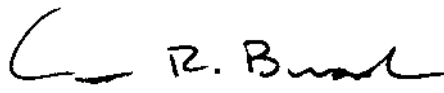
We appreciate the opportunity to provide our services to you on this project. Please contact our office if you have any questions or need further assistance with the project.

Sincerely,

EARTH EXPLORATION, INC.



Kellen P. Heavin, P.E.
Senior Geotechnical Engineer



Curtis R. Bradburn, P.E.
Senior Geotechnical Engineer

Mr. Michael A. Kummeth, P.E.
DLZ Indiana, LLC
Cal Carson Road over Taylor Creek - Hamilton County, IN

November 21, 2014
Page 9

Attachments –

- APPENDIX A - Important Information about Your Geotechnical Report
- APPENDIX B - Field Methods for Exploring and Sampling Soils and Rock
- APPENDIX C - Exploratory Location Plan (Drawing No. 1-14-507.A1)
 - Log of Test Boring – General Notes
 - Log of Test Boring
 - Unconfined Compression Test (4)
 - Summary of Hand Augers

APPENDIX A

IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one—not even you*—should apply the report for any purpose or project except the one originally contemplated.

Read the full report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when

it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions *only* at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an *opinion* about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject To Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the

report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations", many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any *geoenvironmental* findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own *geoenvironmental* information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Rely on Your Geotechnical Engineer for Additional Assistance

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



8811 Colesville Road Suite G106 Silver Spring, MD 20910

Telephone: 301-565-2733 Facsimile: 301-589-2017

email: info@asfe.org www.asfe.org

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APPENDIX B

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger (AASHTO* Designation T251-77), a continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Penetration Test and Split-Barrel Sampling of Soils

(AASHTO* Designation: T206-87)

This method consists of driving a 2-inch outside diameter split-barrel sampler using a 140 pound weight falling freely through a distance of 30 inches. The sampler is first seated 6-inches into the material to be sampled and then driven 12 inches. The number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance or N-Value. The blow counts are reported on the Test Boring Records per 6 inch increment. Recovered samples are first classified as to texture by the driller. Later, in the laboratory the driller's classification is reviewed by a soils engineer who examines each sample.

C. Thin-walled Tube Sampling of Soils

(AASHTO* Designation: T207-87)

This method consists of pushing a 2-inch or 3-inch outside diameter thin wall tube by hydraulic or other means into soils, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings

(AASHTO* Designation: T203-82)

This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-foot intervals or with each change in the substrata. Relatively disturbed samples are obtained and its use is therefore limited to situations where it is satisfactory to determine approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation

(AASHTO* Designation: T225-83)

This method consists of advancing a hole in bedrock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-inch outside diameter by 2-inch inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Association of State Highway and Transportation Officials, Washington D.C.

APPENDIX C

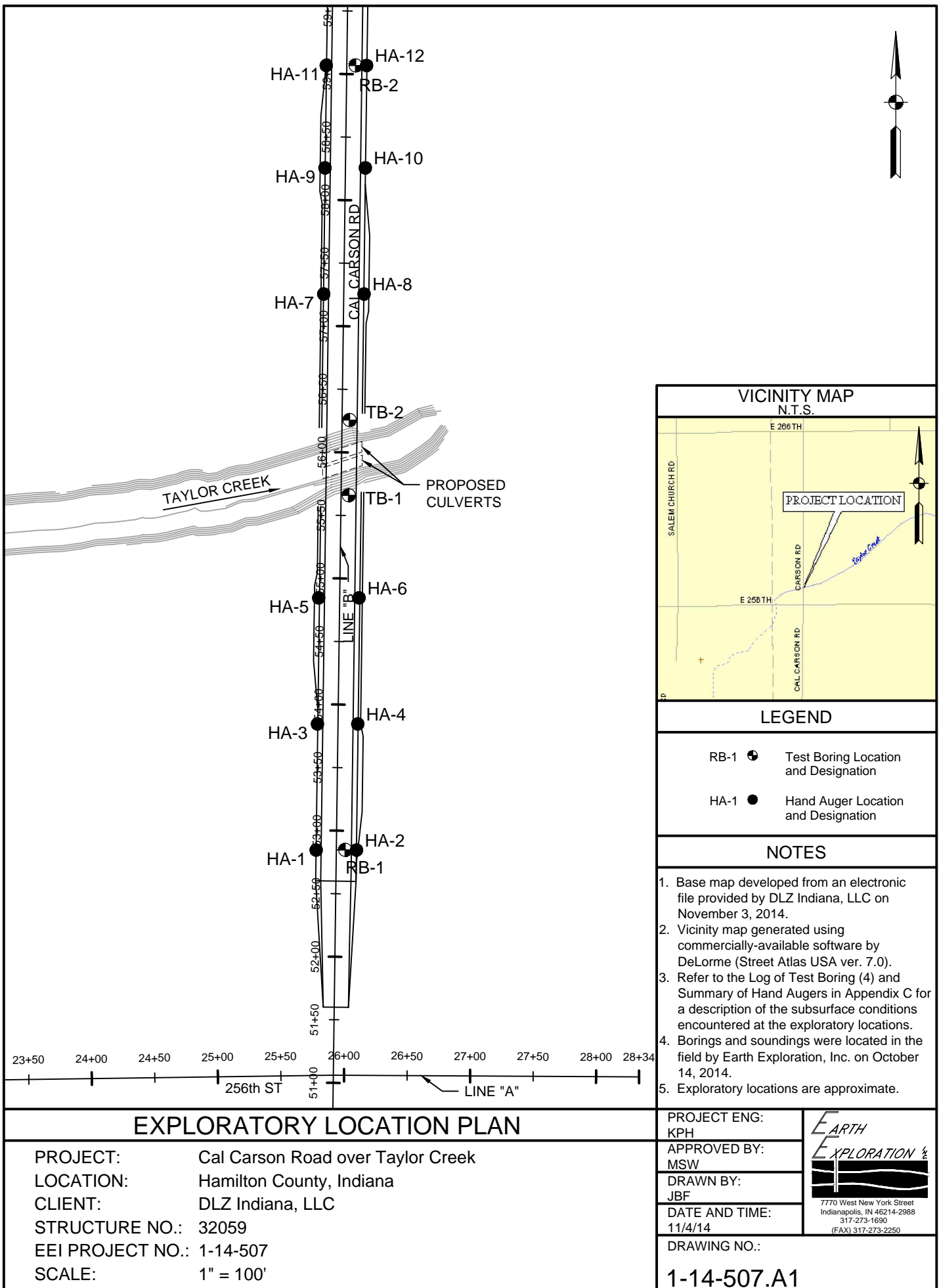
EXPLORATORY LOCATION PLAN
(Drawing No. 1-14-507.A1)

LOG OF TEST BORING - GENERAL NOTES

LOG OF TEST BORING

UNCONFINED COMPRESSION TEST (4)

SUMMARY OF HAND AUGERS



LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3"
Gravel	4.76 mm to 75 mm	#10 to 75 mm
Sand: Course	2.00 to 4.76 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape
 fineness, etc.
Major Constituents
- Clay silt, sand, gravel
Structure
- Laminated, varved, fibrous,
 stratified, cemented, fissured,
 etc.
Geologic Origin
- Glacial, alluvial, eolian,
 residual, etc.

RELATIVE DENSITY

Term	"N" Value
Very loose	0 – 5
Loose	6 – 10
Medium dense	11 – 30
Dense	31 – 50
Very Dense	51+

CONSISTENCY

Term	"q _p "
Very soft	0.0 – 0.25
Soft	0.25 – 0.5
Medium	0.5 – 1.0
Stiff	1.0 – 2.0
Very Stiff	2.0 – 4.0
Hard	4.0+

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4 – 15 %
Organic Soil (A-8)	16 – 30%
Peat (A-8)	More than 30%

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	–	Auger Sample
BS	–	Bag Sample
C	–	Casing Size 2½", NW, 4", HW
COA	–	Clean-Out Auger
CS	–	Continuous Sampling
CW	–	Clear Water
DC	–	Driven Casing
DM	–	Drilling Mud
FA	–	Flight Auger
FT	–	Fish Tail
HA	–	Hand Auger
HSA	–	Hollow Stem Auger
NR	–	No Recovery
PMT	–	Borehole Pressuremeter Test
PT	–	3" O.D. Piston Tube Sample
PTS	–	Peat Sample
RB	–	Rock Bit
RC	–	Rock Coring
REC	–	Recovery
RQD	–	Rock Quality Designation
RS	–	Rock Sounding
S	–	Soil Sounding
SS	–	2" O.D. Split-Barrel Sample
2ST	–	2" O.D. Thin-Walled Tube Sample
3ST	–	3" O.D. Thin-Walled Tube Sample
VS	–	Vane Shear Test
WPT	–	Water Pressure Test

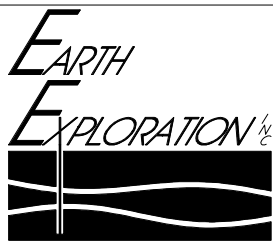
LABORATORY TESTS

q _p	–	Penetrometer Reading, tsf
q _u	–	Unconfined Strength, tsf
W	–	Moisture Content, %
LL	–	Liquid Limit, %
PL	–	Plastic Limit, %
PI	–	Plasticity Index
SL	–	Shrinkage Limit, %
LOI	–	Loss on Ignition, %
γ _d	–	Dry Unit Weight, pcf
pH	–	Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	–	Backfilled upon Completion
NW	–	No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.



LOG OF TEST BORING

Project **Cal Carson Road over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-1**
 Elevation **866**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-507**
 Sheet **1** of **3**

Project No. **---** Station **55+66** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32059** Offset **6 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
				865	ASPHALTIC CONCRETE, 5 in.							
SS-1	X	65	9		SILTY LOAM, stiff, dark gray and brown	2.0			19.4			
SS-2	X	65	6	5		1.5			22.1			
SS-3	X	65	7		CLAY LOAM, stiff, brown	1.5			16.4			
SS-4	X	65	17	10		>4.5			10.8			
SS-5	X	65	10		LOAM, hard to stiff, brown and gray	1.75	2.24	127.8	12.4			
SS-6	X	65	10	15								
SS-7	X	55	30		SAND AND GRAVEL, loose to dense, moist to wet below 16', gray, with cobbles							
SS-8	X	0	42	20								
SS-9	X	65	36	25		4.0	6.41	123.6	13.4			
SS-10	X	65	65	30	LOAM, hard to stiff, gray, with wet sand seams and cobbles	1.75			12.7			

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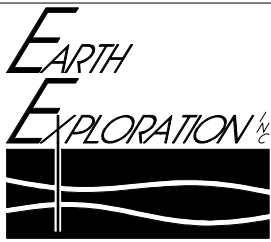
WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft ▽ While Drilling ▽ Upon Completion ▽ After Drilling
 To Water **16** **5** **BF**
 To Cave-in **39**

Start **10/18/14** End **10/18/14** Rig **CME 750**
 Drilling Method **3 1/4" I.D. HSA** **ATV**
 Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **Cal Carson Road over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

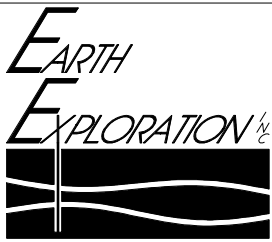
Boring No. **TB-1**
 Elevation **866**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-507**
 Sheet **2** of **3**

Project No. **---** Station **55+66** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32059** Offset **6 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
				835	LOAM , hard to stiff, gray, with wet sand seams and cobbles							
SS-11	X	65	70	35								
				830	SAND AND GRAVEL , very dense, wet, gray, with cobbles							
SS-12	X	70	96/0.7	40		4.0			9.5			
				825	LOAM , hard, gray							
SS-13	X	85	50/.3	45		>4.5			8.9			
				820								
SS-14	X	65	52	50		>4.5			10.1			
				815								
SS-15	X	65	98/0.9	55		>4.5			11.5			
				810								
SS-16	X	50	92/0.8	60		>4.5			11.7			
				805								

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The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

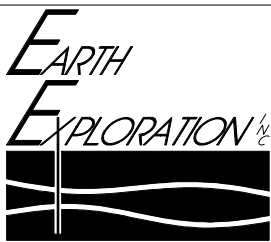
Project **Cal Carson Road over Taylor Creek**
Location **Hamilton County, Indiana**
Client **DLZ Indiana, LLC**
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-1**
Elevation **866**
Datum **NAVD 88**
EEI Proj. No. **1-14-507**
Sheet **3** of **3**

Project No. **---** Station **55+66** Weather **Cloudy** Driller **C.H.**
Struct. No. **32059** Offset **6 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
SS-17	X	65	96/0.9	65	LOAM, hard, gray	>4.5			9.5			
				800								
SS-18	X	100	50/4		End of Boring at 68.9 ft	>4.5			9.6			

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **Cal Carson Road over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-2**
 Elevation **865**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-507**
 Sheet **1** of **3**

Project No. **---** Station **56+25** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32059** Offset **6 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES							
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %	
					ASPHALTIC CONCRETE, 5 in.								
SS-1	X	65	10		CLAY LOAM, stiff, brown	2.0			12.6	26	16	10	
SS-2	X	65	4	5 860		1.0			17.2				
SS-3	X	65	9		SILT, loose, wet, gray								
SS-4	X	65	6	10 855	LOAM, very stiff, gray	3.0			12.0	22	13	9	
SS-5	X	65	9		SILTY CLAY, very stiff, gray	2.0	1.66	125.0	12.8				
SS-6	X	65	11	15 850		3.0			11.7				
SS-7	X	65	17		LOAM, hard, gray, with occasional wet sand seams	4.0			12.4				
SS-8	X	65	27	20 845		>4.5			7.5				
SS-9	X	65	39	25 840		>4.5	8.99	127.4	12.1				
SS-10	X	65	87	30 835		>4.5			12.4				

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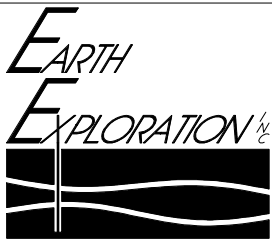
WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft ▽ While Drilling ▽ Upon Completion ▽ After Drilling
 To Water **28½** **4** **BF**
 To Cave-in **34**

Start **10/18/14** End **10/18/14** Rig **CME 750**
 Drilling Method **3¼" I.D. HSA ATV**
 Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **Cal Carson Road over Taylor Creek**
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 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

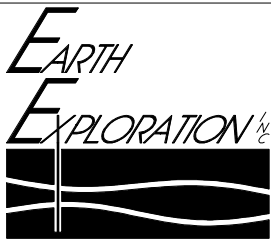
Boring No. **TB-2**
 Elevation **865**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-507**
 Sheet **2** of **3**

Project No. **---** Station **56+25** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32059** Offset **6 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					LOAM , hard, gray, with occasional wet sand seams							
SS-11	X	65	95	35 830	SILT , very dense, wet, gray							
SS-12	X	65	83	40 825	LOAM , hard, gray	>4.5			9.4			
SS-13	X	65	94/0.9	45 820		>4.5			9.5			
SS-14	X	65	97/0.8	50 815	LOAM , hard, gray	>4.5			8.3			
SS-15	X	65	90	55 810		>4.5			10.2			
SS-16	X	65	97/0.8	60 805		>4.5			7.7			

Continued Next Page

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

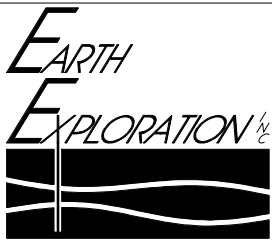
Project **Cal Carson Road over Taylor Creek**
Location **Hamilton County, Indiana**
Client **DLZ Indiana, LLC**
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. **TB-2**
Elevation **865**
Datum **NAVD 88**
EEI Proj. No. **1-14-507**
Sheet **3** of **3**

Project No. **---** Station **56+25** Weather **Cloudy** Driller **C.H.**
Struct. No. **32059** Offset **6 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
SS-17	X	85	50/4		LOAM, hard, gray	>4.5			9.9			
				65 800								
SS-18	X	85	50/3		End of Boring at 69.3 ft	>4.5			9.6			

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **Cal Carson Road over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **RB-1**
 Elevation **870**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-507**
 Sheet **1** of **1**

Project No. **---** Station **52+85** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32059** Offset **7 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					ASPHALTIC CONCRETE, 5 in.							
SS-1	X	65	10			3.0			22.8	49	18	31
SS-2	X	65	7	5 865	CLAY , very stiff to stiff, brown	1.5			20.2			
SS-3	X	65	10			1.25			19.1			
SS-4	X	65	21	10 860	LOAM , hard, mottled brown and gray	>4.5			9.4			
					End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft ▽ While Drilling ▽ Upon Completion ▽ After Drilling
 To Water **NW** **NW** **BF**
 To Cave-in **5**

Start **10/18/14** End **10/18/14** Rig **CME 750**
 Drilling Method **3 1/4" I.D. HSA** **ATV**
 Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

Project **Cal Carson Road over Taylor Creek**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **RB-2**
 Elevation **867**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-507**
 Sheet **1** of **1**

Project No. **---** Station **59+07** Weather **Cloudy** Driller **C.H.**
 Struct. No. **32059** Offset **7 ft Rt. "B"** Temp. **62° F** Inspector **K.H.**

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					ASPHALTIC CONCRETE, 5 in.							
SS-1	X	65	8	865	SILTY CLAY LOAM , hard, dark gray, LOI = 3.2%	4.0			19.2			
SS-2	X	65	5	5	CLAY LOAM , very soft, brown	0.25			24.9			
SS-3	X	65	8	860	LOAM , hard to very stiff, gray	>4.5			11.0			
SS-4	X	65	7	10		3.5			10.2			
End of Boring at 10 ft												

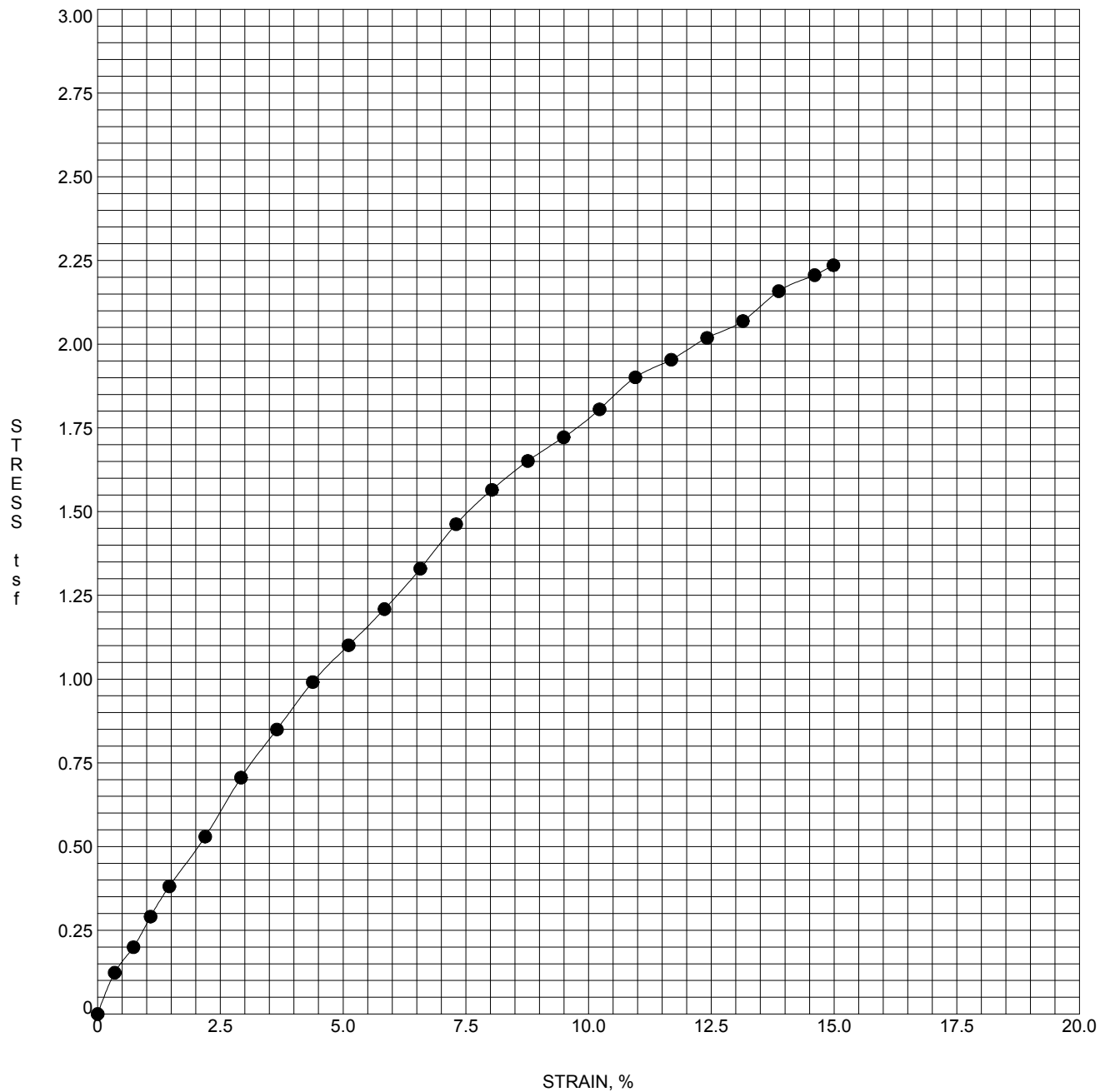
WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft ▽ While Drilling ▼ Upon Completion ▽ After Drilling
 To Water **NW** **NW** **BF**
 To Cave-in **5**

Start **10/18/14** End **10/18/14** Rig **CME 750**
 Drilling Method **3 1/4" I.D. HSA** **ATV**
 Remarks **Backfilled with auger cuttings, bentonite chips and concrete patch at surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



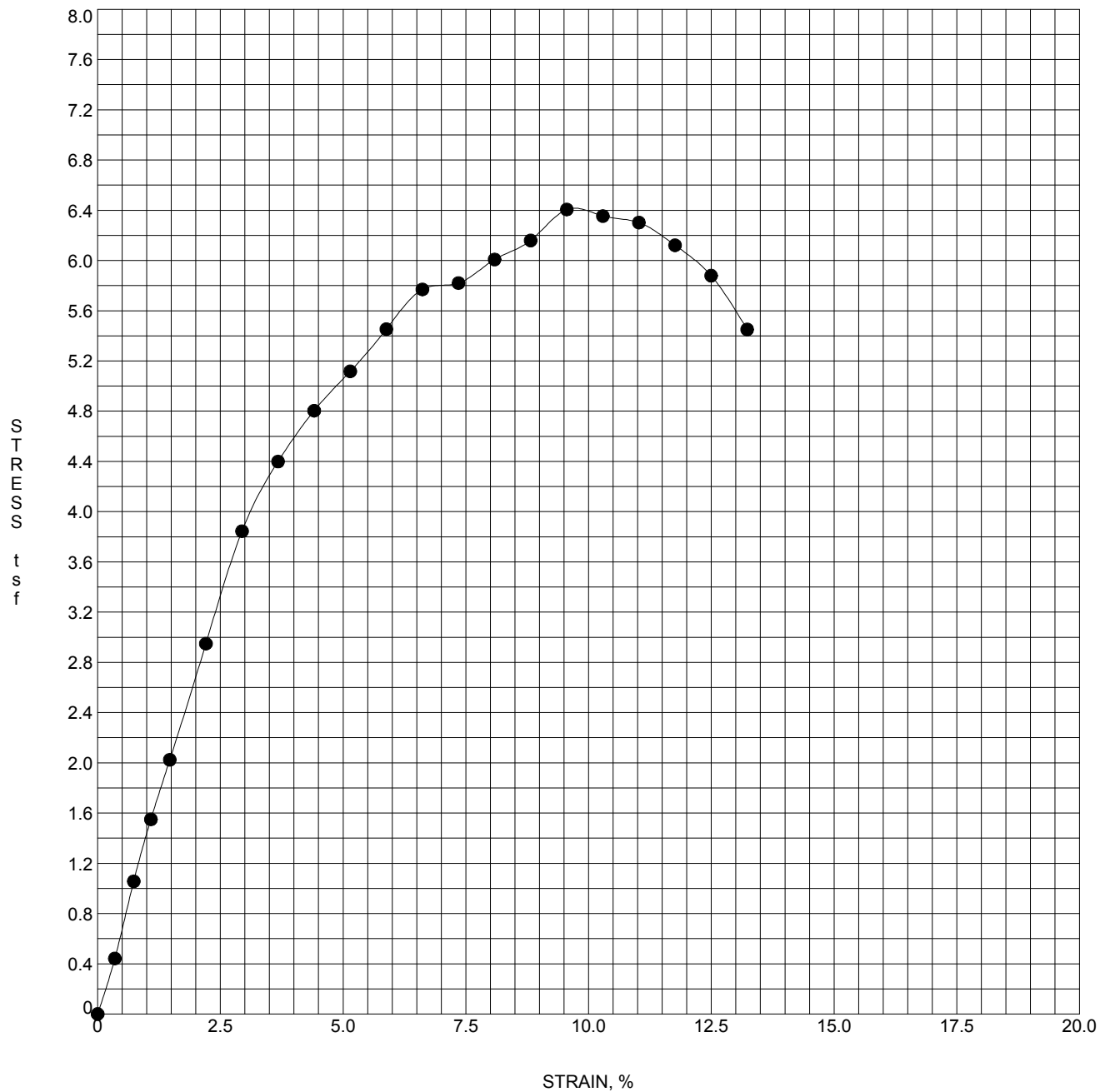
Sample Identification			Station / Offset / Line			Depth, ft		Classification	
●	TB-1	SS-5	55+66 6 ft Rt. "B"			11.0 - 12.5		LOAM	
Lab No.	Sample Ht., mm	Sample Diam., mm	Initial M.C., %	Initial Wet Den, pcf	Initial Dry Den, pcf	Sat., %	Unc. Comp. Strength, tsf	Failure Strain, %	Rate of Strain to Failure, %
17076SL	73.1	34.7	12.4	143.7	127.8	99.4	2.24	15.0	1.5



Project No. --- **Project** Cal Carson Road over Taylor Creek
Structure No. 32059 **Location** Hamilton County, Indiana
EEL Proj. No. 1-14-507 **Client** DLZ Indiana, LLC

UNCONFINED COMPRESSION TEST

Earth Exploration, Inc.
 7770 West New York Street Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)



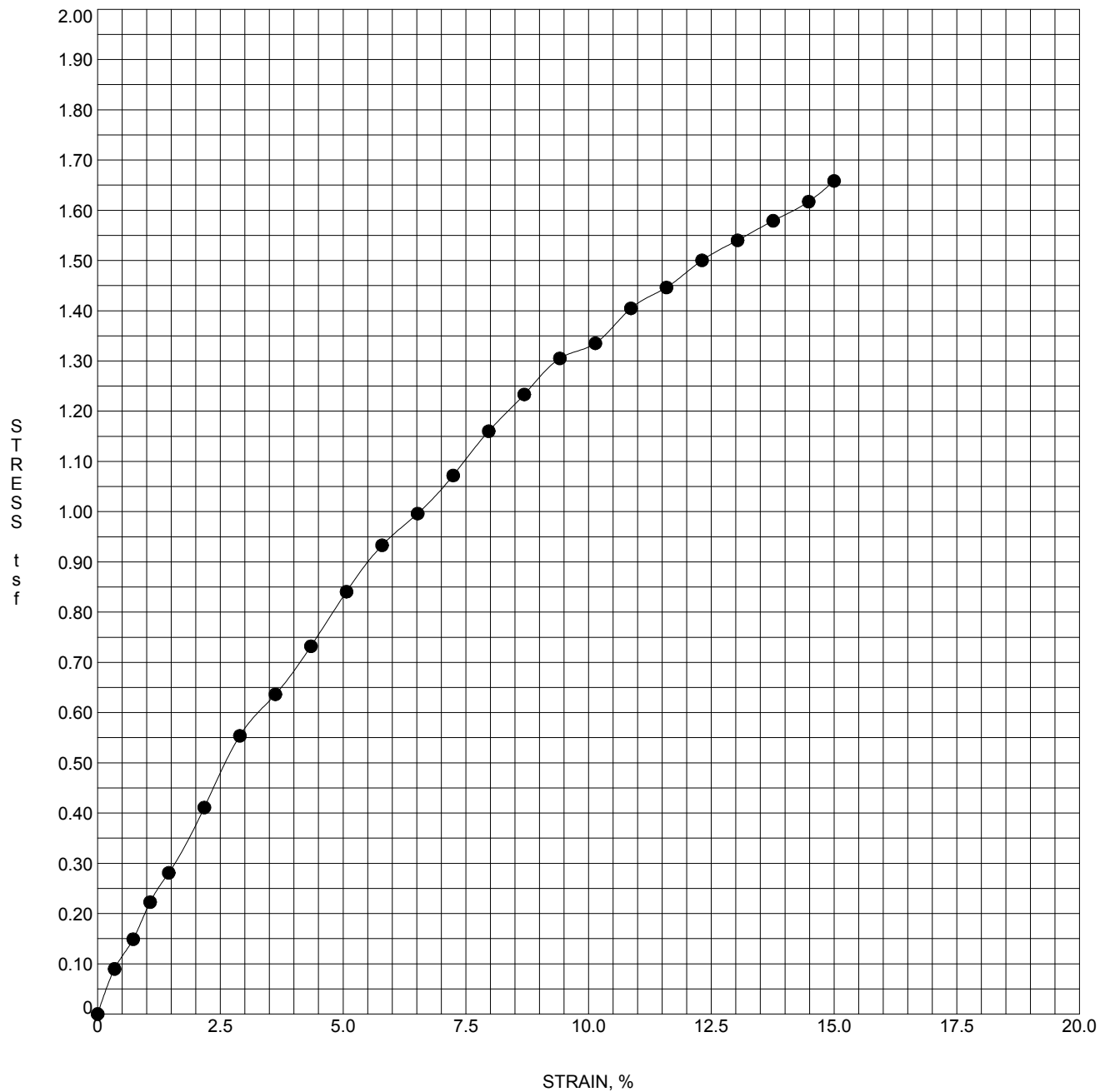
Sample Identification			Station / Offset / Line			Depth, ft		Classification	
●	TB-1	SS-9	55+66 6 ft Rt. "B"			23.5 - 25.0		LOAM	
Lab No.	Sample Ht., mm	Sample Diam., mm	Initial M.C., %	Initial Wet Den, pcf	Initial Dry Den, pcf	Sat., %	Unc. Comp. Strength, tsf	Failure Strain, %	Rate of Strain to Failure, %
17077SL	72.6	35.5	13.4	140.2	123.6	94.7	6.41	9.6	1.5



Project No. --- **Project** Cal Carson Road over Taylor Creek
Structure No. 32059 **Location** Hamilton County, Indiana
EEL Proj. No. 1-14-507 **Client** DLZ Indiana, LLC

UNCONFINED COMPRESSION TEST

Earth Exploration, Inc.
 7770 West New York Street Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)



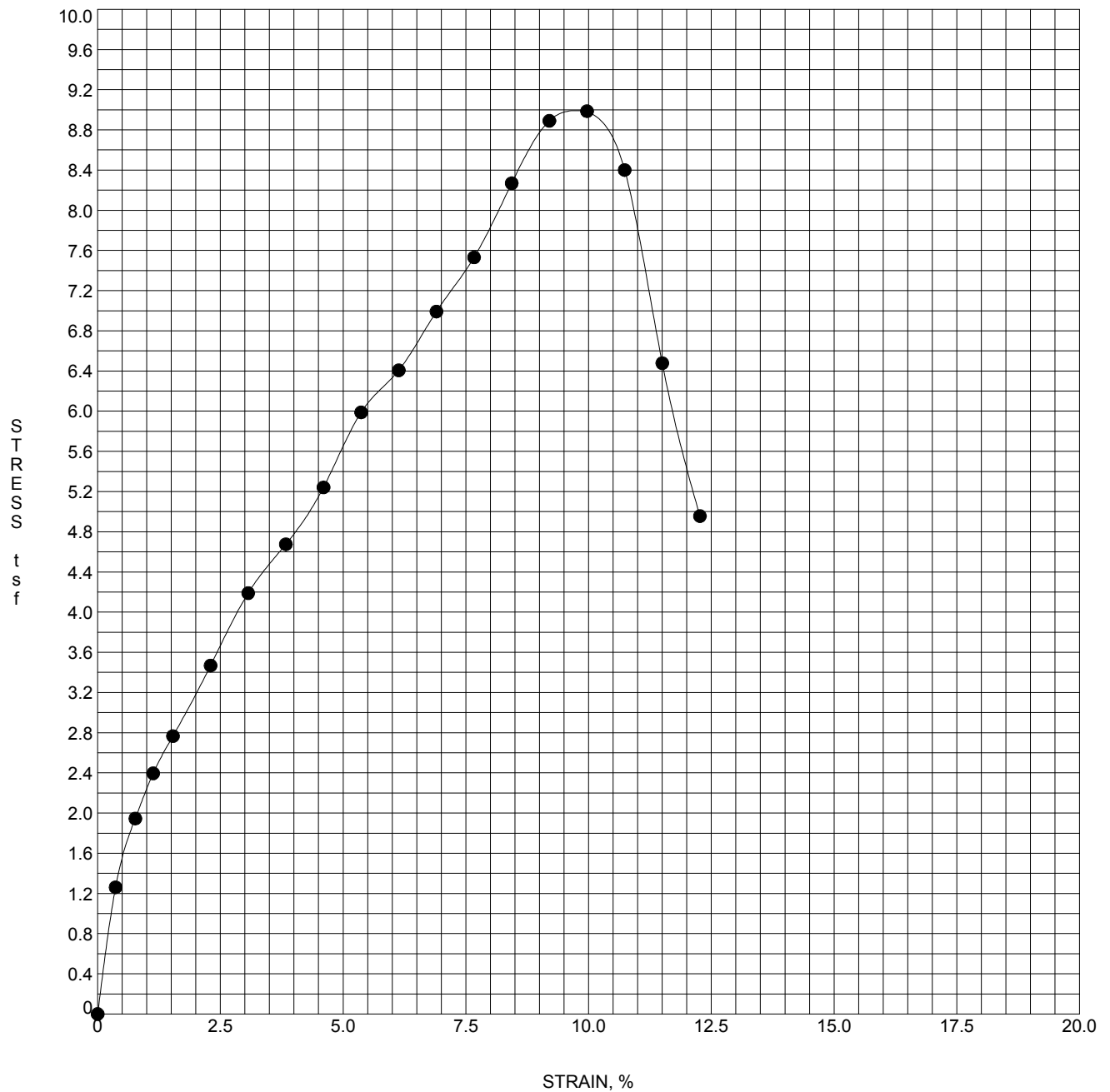
Sample Identification			Station / Offset / Line			Depth, ft		Classification	
●	TB-2	SS-5	56+25 6 ft Rt. "B"			11.0 - 12.5		SILTY CLAY	
Lab No.	Sample Ht., mm	Sample Diam., mm	Initial M.C., %	Initial Wet Den, pcf	Initial Dry Den, pcf	Sat., %	Unc. Comp. Strength, tsf	Failure Strain, %	Rate of Strain to Failure, %
17078SL	73.7	35.2	12.8	140.9	125.0	93.9	1.66	15.0	1.4



Project No. --- **Project** Cal Carson Road over Taylor Creek
Structure No. 32059 **Location** Hamilton County, Indiana
EEL Proj. No. 1-14-507 **Client** DLZ Indiana, LLC

UNCONFINED COMPRESSION TEST

Earth Exploration, Inc.
 7770 West New York Street Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)



Sample Identification			Station / Offset / Line			Depth, ft		Classification	
●	TB-2	SS-9	56+25 6 ft Rt. "B"			23.5 - 25.0		LOAM	
Lab No.	Sample Ht., mm	Sample Diam., mm	Initial M.C., %	Initial Wet Den, pcf	Initial Dry Den, pcf	Sat., %	Unc. Comp. Strength, tsf	Failure Strain, %	Rate of Strain to Failure, %
17079SL	69.6	34.7	12.1	142.8	127.4	96.0	8.99	10.0	1.5



Project No. --- **Project** Cal Carson Road over Taylor Creek
Structure No. 32059 **Location** Hamilton County, Indiana
EEL Proj. No. 1-14-507 **Client** DLZ Indiana, LLC

UNCONFINED COMPRESSION TEST

Earth Exploration, Inc.
 7770 West New York Street Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)



SUMMARY OF HAND AUGERS

Project: Cal Carson Road over Taylor Creek
Location: Hamilton County, Indiana
Structure No.: SS# 32059 (Bridge 304)
Client: DLZ Indiana, LLC
EEL Project No.: 1-14-507
Date: 11/13/2014
Method: Hand Auger

Hand Auger No.	Station	Offset Line	Approx. Ground Surface Elevation	Topsoil Depth (in)
HA-1	52+85	20 Lt "B"	865	12
HA-2	52+85	15 Rt "B"	865	10
HA-3	53+85	20 Lt "B"	865	10
HA-4	53.85	18 Rt "B"	864	8
HA-5	54+85	20 Lt "B"	865	10
HA-6	54.85	20 Rt "B"	864	8
HA-7	57+07	18 Lt "B"	865	10
HA-8	57+07	15 Rt "B"	865	8
HA-9	58+07	20 Lt "B"	866	8
HA-10	58+07	15 Rt "B"	865	10
HA-11	59+07	22 Lt "B"	865	10
HA-12	59+07	15 Rt "B"	867	10

Section 3:
Geotechnical Report –Taylor Creek Two-
Stage Ditch Design

EVALUATION OF SUBSURFACE CONDITIONS

**TAYLOR CREEK DETENTION BASIN
HAMILTON COUNTY, INDIANA**

Prepared for

**DLZ INDIANA, LLC
2211 EAST JEFFERSON BOULEVARD
SOUTH BEND, INDIANA 46615**

By

**EARTH EXPLORATION, INC.
7770 WEST NEW YORK STREET
HAMILTON COUNTY, INDIANA 46204**

November 21, 2014

November 21, 2014

Mr. Michael A. Kummeth, P.E.
DLZ Indiana, LLC
2211 East Jefferson Boulevard
South Bend, IN 46615



7770 West New York Street
Indianapolis, IN 46214-2988
317-273-1690 (FAX) 317-273-2250

2204 Yankee Street
Niles, MI 49120
269-262-4320 or 574-233-6820
(FAX) 269-262-4479

Re: Evaluation of Subsurface Conditions
Taylor Creek Detention Basin
Hamilton County, Indiana
EEI Project No. 1-14-508

Dear Mr. Kummeth:

We have completed our evaluation of the subsurface conditions for the above-referenced project. This report presents the results of our subsurface exploratory program and provides discussion as it relates to geotechnical aspects of the project. As you are aware, the work was formally authorized by DLZ Indiana, LLC (DLZ) on October 9, 2014 via a work order, and was performed in accordance with Earth Exploration, Inc. (EEI) Proposal No. P1-13-241.1. For your information, we are enclosing three paper copies for your review and distribution and can provide additional copies, if requested. In addition, a copy was sent via electronic mail. Unless you notify us otherwise, we will retain the soil samples from the exploratory program for 60 days and then discard them.

The opinions and recommendations submitted in this report are based, in part, on our interpretation of the subsurface information revealed at the exploratory locations as indicated on an attached plan. Understandably, this report does not reflect variations in subsurface conditions between or beyond these locations. Therefore, variations in these conditions can be expected, and fluctuation of the groundwater levels will occur with time. Other important limitations of this report are discussed in Appendix A.

PROJECT DESCRIPTION

From our understanding, the commissioners of Hamilton County are considering a two-stage ditch detention concept along Taylor Ditch between the bridges at 256th Street and Cal Carson Road (i.e., northwest of the intersection of 256th Street and Cal Carson Road). Based on preliminary plans provided by DLZ, the northern ditch bank is planned to be cut back at a 3 Horizontal to 2 Vertical (3H:2V) slope. The south bank is also planned to be cut back at a 3H:2V with a 10 ft wide bench proposed near El. 860 to 861. Based on our conversations with DLZ, it is understood that the placement of an erosion control blanket is also planned soon after the excavation is completed, and riprap is planned at the tighter curves along the ditch (possibly with a geotextile fabric). However, details and specifications pertaining to the erosion control blanket and the limits of the riprap were not available for review. Additional details of the proposed improvements, such as construction schedule are not known. In the event that the nature, design or location of the proposed

construction changes, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions are modified or confirmed in writing.

FIELD EXPLORATION AND LABORATORY TESTING

Subsurface conditions were explored by performing three exploratory boring/sounding, as requested, to depths of 6½ and 20 ft below the existing ground surface at the locations shown on Drawing No. 1-14-508.A1. The number, depth, and location of the boring/sounding were determined by DLZ. The exploratory locations were identified in the field by EEI personnel referencing identifiable features shown on the plans. Ground surface elevations at the exploratory locations were interpolated to the nearest foot based on topographic information provided in the aforementioned plans. The boring locations should be considered accurate only to the degree implied by the methods used.

Exploratory activities were initially performed by EEI on October 16, 2014 using track-mounted equipment. The exploratory activities were performed using hollow-stem augers to advance the borehole. Representative samples of the soil conditions were obtained at predetermined intervals using Standard Penetration Test (SPT) procedures (ASTM D 1586). After obtaining final groundwater observations, the exploratory locations were backfilled with a mixture of auger cuttings and bentonite chips. However, due to soft ground conditions, our drilling rig could not access the location of Boring B-2. This boring was located in a low-lying area that contained drainage path that connected the creek with a pond. After discussing this with representatives of DLZ, it was decided that a hand auger would be performed at this location. This hand auger boring was performed on October 27, 2014, and disturbed samples were obtained from the auger cuttings. Additional details of the drilling and sampling procedures are provided in Appendix B.

Following the exploratory activities, the soil samples were visually classified by an EEI engineering technician and later reviewed by an EEI geotechnical engineer. After visually classifying the soils, representative samples were selected and submitted for laboratory testing. These tests included moisture content (ASTM D 4959), Atterberg limits (ASTM D 4318), and hand penetrometer readings. The results of the tests are provided on the boring logs in Appendix C. For your information, soil descriptions on the boring log are in general accordance with the USCS system. The final boring log represents our interpretation of the individual samples and field log and results of the laboratory tests. The stratification lines on the boring log represents the approximate boundary between soil types; although, the transition may actually be gradual.

SITE CONDITIONS

Surface Conditions

The detention basin is located in a rural area southwest of Arcadia. Based on our observations, the ground surface within the project limits is relatively flat to gently sloping with an exception at the “V”

shaped channel of the creek. The surface conditions at the boring locations consisted of about 4 to 6 in. of topsoil.

Subsurface Conditions

The subsurface profile at the boring locations varied significantly. Lean clay was observed at Borings B-1 and B-3 to depths of 3½ and 6 ft, respectively. At the location of Boring B-1, the lean clay was underlain by silty sand to a depth of 8½ ft which was, in turn, underlain by fine to medium sand that extended to the maximum depth explored. At the location of Boring B-3, the lean clay was underlain by silty clay that extended to the maximum depth explored. Clayey silt and sand containing organic matter was observed at Sounding B-2 from the ground surface to a depth of 6 ft. Underlying the clayey silt, fine to medium sand was observed to the maximum depth explored.

Based on our observations, the consistency of the lean clay was typically soft to stiff based on hand penetrometer readings generally ranging from ¼ to 1½ tons/sq ft (tsf), and the moisture content was in the range of 22 to 33 percent. The soft soils were observed at Boring B-3 between the depths of 3 to 6 ft. Typically, the moisture content of a cohesive-type soil is indicative of the strength and deformational characteristics (i.e., for a given cohesive soil, the higher the moisture content the lower the strength and the greater the deformational characteristics). The soft conditions are likely due to an increase of moisture from undocumented sand seams. The consistency of the silty clay was typically stiff to very stiff based on hand penetrometer readings in the range of 1 to 4 tsf, and the moisture content was in the range of 8 to 14 percent. Based on the results of Atterberg limit tests, the lean clay is of moderate plasticity based on a plasticity index (PI) of 30, and the clayey silt and silty clay is of low plasticity based on a PI in the range of 5 to 9. The relative density of the granular soil (silty sand, sand, and silt) was loose to medium dense based on N-values of 6 to 24 blows/ft (bpf).

Groundwater Conditions

Groundwater level observations were made during, upon completion of the drilling and sampling process, and up to 24 hrs after the completion of the drilling and sampling process. Groundwater levels of 4 and 6 ft were observed at Borings B-1 and B-3, respectively shortly after the completion of the sampling activities. The observed groundwater levels for these borings were then observed to be 2½ and 3 ft, respectively, 24 hrs after the completion of the sampling activities. A groundwater level at the ground surface was observed at Sounding B-2 during and upon completion of the sampling activities. Based on these observations and the subsurface conditions, it is our opinion that the initially observed level is likely perched and influenced by the level of the creek. This is also somewhat consistent with the generalized information published in a reference titled *Hydrogeologic Atlas of Aquifers in Indiana* (U.S. Geological Survey, Water-Resources Investigations Report 92-4142) which indicates the groundwater in this area to be more than 200 ft below the existing ground surface. It should be noted that groundwater levels either perched or piezometric will vary due to changes in precipitation, infiltration, run-off, pumping rates of nearby wells (if any), level of the creek, and other hydrogeological factors.

DISCUSSION

As discussed, the subsurface conditions at the boring locations consisted of lean clays underlain by both granular and cohesive soils. Additionally, the existing slopes are planned to be cut back to a 3H:2V slope. We do not anticipate that the construction of these slopes will cause a global slope instability. However, slopes steeper than 3H:1V will create maintenance issues, with regards to accessibility of mowing equipment, if they are not adequately protected at the face. Additionally, unreinforced soil slopes of 2H:1V and steeper are susceptible to surficial sloughing and erosion. To reduce sloughing and erosion, it is important to provide adequate erosion protection at the face of the slope. However, it is anticipated that even if adequate erosion protection is provided, slopes established at 3H:2V will still experience sloughing. Portions of the slope are anticipated to experience deep sloughs, which extend 12 in. or more inward from the original cut face (refer to the slope stability analysis output in Appendix C showing a factor of safety of 0.9168). This will result in a “scalloped” texture to the slopes along the proposed detention basin. Additionally, periodic maintenance is anticipated and should be planned to remove sloughed material from the channel and repair of slough areas to reduce the potential for additional movement.

If the aesthetics and/or maintenance issues associated with the 3H:2V slopes are not desirable, the slopes may be flattened to 2H:1V, the slope face may be treated with riprap, a permanent turf reinforcement mat may be utilized, or a synthetic cellular confinement type product could be placed along the slope. Not that as stated above, 2H:1V slopes are stiff susceptible to sloughing; however, deeper sloughs are not anticipated if the slope is flattened. If the use of riprap is desirable, we recommend that a minimum of 18 in. of riprap be placed along the slope face. It is recommended that the riprap be “keyed” into the foundation soils at the toe to reduce the potential for movement of this material. It is also recommended that a geotextile be utilized at the riprap/soil interface to provide separation of the materials to reduce migration of the soil through the riprap. Benefits with the use of riprap include material availability, ease of installation, and relative cost. However, some owners dislike the aesthetics of riprap slopes. Additionally, it is not known how the placement of riprap may affect the permitting for the project.

Permanent turf reinforcement mats can consist of both synthetic and natural materials. These systems utilize an anchor (pins or nails in synthetic systems and live stakes in natural systems) to affix a net or mesh that supports and retains the surficial soil of the slope, allowing vegetation to grow and reducing the potential for sloughing. Whether a synthetic or natural system is used, the product is overgrown, if vegetation is successful, and the supporting elements are usually concealed providing a green look to the finished product. Systems utilizing more natural materials are generally considered favorable by regulatory officials. These systems can generally be installed by the same crew that performs the construction, but some proprietary systems may require a specialty contractor. In addition, the cost of this option is generally more expensive than the use of riprap.

Synthetic cellular confinement systems, such as Geoweb[®], consists of integrated cells that can be placed perpendicular to the slope, or stacked to provide a measure of earth retention. The cells are anchored in place with stakes, tendons, or proprietary anchors, and then filled with soil and/or aggregate and then vegetated to provide a flexible armoring system. Perforated cells are

available for use in hydraulic applications to allow drainage through the slope and between the cells. These systems can also be installed by the same crew that performs the construction. However, they are also relatively expensive when compared to the riprap option.

EEl should be retained to review the final design and provide additional recommendations if any of these alternative slopes systems are considered.

CONCLUDING REMARKS

In closing, we recommend that EEl be provided the opportunity to review the final design and project specifications to confirm that earthwork and foundation requirements have been properly interpreted and implemented in the design and specifications. We also recommend that EEl be retained to provide construction observation services during the earthwork and foundation construction phases of the projects. This will allow us to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations. It will also allow design changes to be made in the event that subsurface conditions differ from those anticipated.

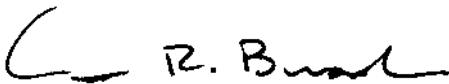
We appreciate the opportunity to provide our services to you on this project. Please contact our office if you have any questions or need further assistance with the project.

Sincerely,

EARTH EXPLORATION, INC.



Kellen P. Heavin, P.E.
Sr. Geotechnical Engineer



Curtis R. Bradburn, P.E.
Sr. Geotechnical Engineer



- | | |
|--------------|--|
| Appendix A - | Important Information about your Geotechnical Engineering Report |
| Appendix B - | Field Methods for Exploring and Sampling Soils and Rock |
| Appendix C - | Exploratory Location Plan - Drawing No. 1-14-508.A1 |
| | Unified Soil Classification System/General Notes |
| | Log of Test Boring and Sounding (3) |
| | Slope Stability Analysis |

APPENDIX A

IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one—not even you*—should apply the report for any purpose or project except the one originally contemplated.

Read the full report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when

it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions *only* at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an *opinion* about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject To Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the

report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations", many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any *geoenvironmental* findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own *geoenvironmental* information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Rely on Your Geotechnical Engineer for Additional Assistance

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



8811 Colesville Road Suite G106 Silver Spring, MD 20910

Telephone: 301-565-2733 Facsimile: 301-589-2017

email: info@asfe.org www.asfe.org

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UGER1000.10M

APPENDIX B

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger, continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Standard Penetration Test and Split-Barrel Sampling of Soils

(ASTM* Designation: D 1586)

This method consists of driving a 2-in. outside diameter split-barrel sampler using a 140-lb weight falling freely through a distance of 30 in. The sampler is first seated 6 in. into the material to be sampled and then driven 12 in. The number of blows required to drive the sampler the final 12 in. is recorded on the Log of Test Boring and known as the Standard Penetration Resistance or N-value. Recovered samples are first classified as to texture by the field personnel. Later in the laboratory, the field classification is reviewed by a geotechnical engineer who observes each sample.

C. Thin-walled Tube Sampling of Soils

(ASTM* Designation: D 1587)

This method consists of hydraulically pushing a 2-in. or 3-in. outside diameter thin wall tube into the soil, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings

(ASTM* Designation: D 1452)

This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-ft intervals or with each change in the substrata. Relatively disturbed samples are obtained and its use is therefore limited to situations where it is satisfactory to determine approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation

(ASTM* Designation: D 2113)

This method consists of advancing a hole in rock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-in. outside diameter by 2-in. inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Society for Testing and Materials, Philadelphia, PA

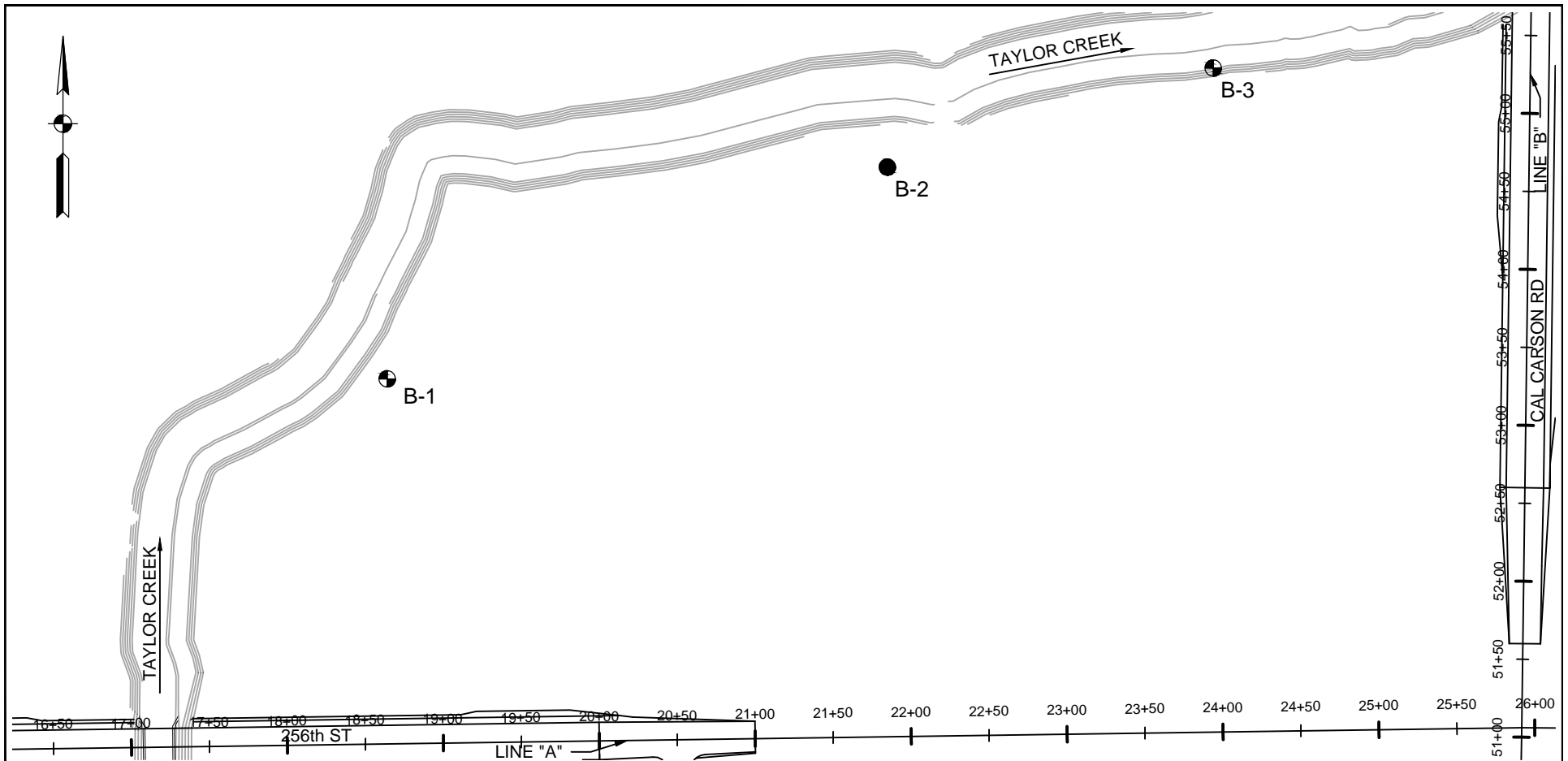
APPENDIX C

TEST BORING LOCATION PLAN
Drawing No. 1-14-508.A1

UNIFIED SOIL CLASSIFICATION SYSTEM/GENERAL NOTES

LOG OF TEST BORING (3)

SLOPE STABILITY ANALYSIS



VICINITY MAP N.T.S.	NOTES	LEGEND	
	<ol style="list-style-type: none"> 1. Base map developed from an electronic file provided by DLZ Indiana, LLC on November 3, 2014. 2. Vicinity map generated using commercially-available software by DeLorme (Street Atlas USA ver. 7.0). 3. Refer to the Log of Test Boring and Sounding (3) in Appendix C for a description of the subsurface conditions encountered at the exploratory locations. 4. Borings and sounding were located in the field by Earth Exploration, Inc. on October 10, 2014. 5. Exploratory locations are approximate. 	<p>B-1 ● Test Boring Location and Designation</p> <p>B-2 ● Sounding Location and Designation</p>	
	<h3 style="text-align: center;">EXPLORATORY LOCATION PLAN</h3> <p>PROJECT: Taylor Creek Two-Stage Ditch</p> <p>LOCATION: Hamilton County, Indiana</p> <p>CLIENT: DLZ Indiana, LLC</p> <p>EEI PROJECT NO.: 1-14-508</p> <p>SCALE: 1" = 100'</p>		<div> <div>PROJECT ENG: KPH</div> <div>APPROVED BY: MSW</div> <div>DRAWN BY: JBF</div> <div>DATE AND TIME: 11/4/14</div> <div>DRAWING NO.: 1-14-508.A1</div> </div> <div> <p>7770 West New York Street Indianapolis, IN 46214-2988 317-273-1690 (FAX) 317-273-2250</p> </div>



UNIFIED SOIL CLASSIFICATION SYSTEM / GENERAL NOTES

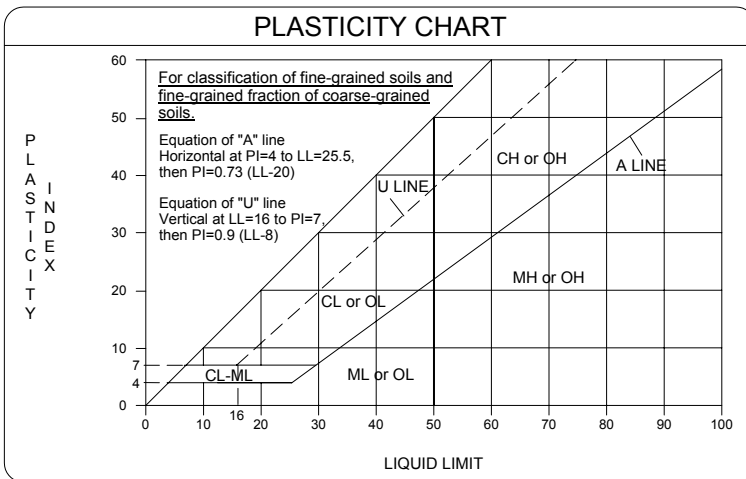
FINE-GRAINED SOILS		COARSE-GRAINED SOILS		RELATIVE PROPORTIONS		ORGANIC CONTENT BY COMBUSTION METHOD	
CONSISTENCY	UNCONFINED STRENGTH (tsf)	RELATIVE DENSITY	N-VALUE* (Blows/ft)	TERM	DEFINING RANGE BY % OF WEIGHT	SOIL DESCRIPTION	LOI
Very Soft	<0.25	Very Loose	0 - 4	Trace	0 - 5	Trace Organic Matter	0 - 5%
Soft	0.25 - 0.5	Loose	4 - 10	Little	5 - 12	Little Organic Matter	5 - 12%
Medium	0.5 - 1.0	Medium Dense	10 - 30	Some	12 - 35	Organic Silt/Clay	12 - 35%
Stiff	1.0 - 2.0	Dense	30 - 50	And	35 - 50	Sedimentary Peat	35 - 50%
Very Stiff	2.0 - 4.0	Very Dense	50+			Fibrous and Woody Peat	50%±
Hard	>4.0						

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART						
MAJOR DIVISIONS			SYMBOLS & DESCRIPTIONS			
COARSE-GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES		
		Little or no fines	GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES		
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES		
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES		
	More than 50% of coarse fraction retained on No. 4 sieve	SAND AND SANDY SOILS	CLEAN SANDS	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
			Little or no fines	SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
			SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES	
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES	
FINE-GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SAND OR CLAYEY SILTS WITH SLIGHT PLASTICITY		
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS SANDY CLAYS, SILTY CLAYS, LEAN CLAYS		
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY		
	More than 50% of material finer than No. 200 sieve	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILT	
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT	
	NOTE: DUAL SYMBOLS USED FOR BORDERLINE CLASSIFICATIONS					

NOTE: DUAL SYMBOLS USED FOR BORDERLINE CLASSIFICATIONS

GRAIN SIZE TERMINOLOGY		
SOIL FRACTION	PARTICLE SIZE	US STANDARD SIEVE SIZE
Boulders	Larger than 12-in.	Larger than 12-in.
Cobbles	3 to 12-in.	3 to 12-in.
Gravel	Coarse	3/4 to 3-in.
	Fine	4.75 mm to 3/4-in.
Sand	Coarse	2.00 to 4.75 mm
	Med	0.425 to 2.00 mm
	Fine	0.075 to 0.425 mm
Silt	0.005 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

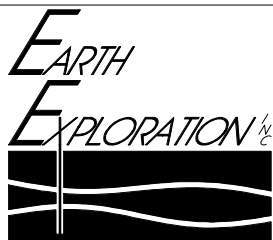
Plasticity characteristics differentiate between silt and clay.



EXPLORATORY SAMPLING ABBREVIATIONS			
AS	- Auger Sample	PID	- Photo-Ionization Detector
BF	- Backfilled Upon Completion	PMT	- Borehole Pressuremeter Test
BS	- Bag Sample	PT	- 3-in. O.D. Piston Sample
C	- Casing: Size 2½-in., NW; 4-in., HW	PTS	- Peat Sample
COA	- Clean-Out Auger	RB	- Rock Bit
CS	- Continuous Sampler	RC	- Rock Core
CW	- Clear Water	REC	- Recovery
DC	- Driven Casing	RQD	- Rock Quality Designation
DM	- Drilling Mud	RS	- Rock Sounding
FA	- Flight Auger	S	- Soil Sounding
FT	- Fish Tail	SS	- 2-in. O.D. Split-Spoon Sample
HA	- Hand Auger	ST	- Thin-Walled Tube Sample
HSA	- Hollow Stem Auger	VS	- Vane Shear Test
NW	- No Water Encountered	WPT	- Water Pressure Test

LABORATORY TEST ABBREVIATIONS	
qp	- Hand Penetrometer Reading, tsf
qu	- Unconfined Compressive Strength, tsf
W	- Moisture Content, %
LL	- Liquid Limit, %
PL	- Plastic Limit, %
PI	- Plasticity Index, %
SL	- Shrinkage Limit, %
LOI	- Loss on Ignition, %
γ _d	- Dry Unit Weight, pcf
pH	- Hydrogen-Ion Concentration
P ₂₀₀	- Percent Passing a No. 200 Sieve

*The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" O.D. split-spoon sampler. The sampler is driven with a 140 lb weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.



LOG OF TEST BORING

Project **Taylor Creek Two-Stage Ditch**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **B-1**
 Elevation **865**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-508**
 Sheet **1** of **1**

Project No. --- Station **18+67** Weather --- Driller **C.H.**
 Struct. No. --- Offset **234 ft Lt. "A"** Temp. --- Inspector ---

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES						
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %
					TOPSOIL							
SS-1	X	80	7		CL, LEAN CLAY , trace sand and gravel, stiff, moist, brown	1.5			29.5			
SS-2	X	65	6	5 860	SM, SILTY SAND , trace gravel, loose to medium dense, wet, gray							
SS-3	X	80	14									
SS-4	X	100	17	10 855	SP, FINE TO MEDIUM SAND , and gravel, medium dense, wet, gray							
SS-5	X	80	21									
SS-6	X	55	22	15 850								
SS-7	X	65	24									
SS-8	X	85	21	20 845								
					End of Boring at 20 ft							

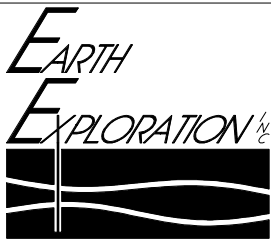
WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft	▽ While Drilling	▼ Upon Completion	▽ 24 hrs After Drilling
To Water	3½	4	2½
To Cave-in		10	5½

Start **10/16/14** End **10/16/14** Rig **CME 750**
 Drilling Method **3¼" I.D. HSA** **ATV**
 Remarks **Backfilled with auger cuttings and bentonite chip plug near surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.



LOG OF TEST BORING

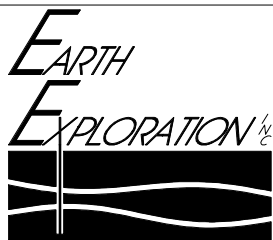
Project **Taylor Creek Two-Stage Ditch**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **B-2**
 Elevation **861**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-508**
 Sheet **1** of **1**

Project No. --- Station **21+90** Weather --- Driller **B.N.**
 Struct. No. --- Offset **365 ft Lt. "A"** Temp. --- Inspector ---

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES							
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %	
AS-1				860	ML, CLAYEY SILT , and sand, wet, black, with organic matter and frequent sand seams				62.4				
AS-2										30.1	25	20	5
AS-3				5						47.9			
				855	SP-SM, FINE TO MEDIUM SAND , and gravel, wet, black								
End of Boring at 6.5 ft													

WATER LEVEL OBSERVATIONS					GENERAL NOTES	
Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling		Start 10/27/14	End 10/27/14 Rig CME 750
To Water	surface	surface	BF		Drilling Method H.A.	ATV
To Cave-in		NA			Remarks Backfilled with auger cuttings and bentonite chip plug near surface.	
The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.						



LOG OF TEST BORING

Project **Taylor Creek Two-Stage Ditch**
 Location **Hamilton County, Indiana**
 Client **DLZ Indiana, LLC**
 7770 West New York Street - Indianapolis, Indiana 46214
 317-273-1690 / 317-273-2250 (Fax)

Boring No. **B-3**
 Elevation **865**
 Datum **NAVD 88**
 EEI Proj. No. **1-14-508**
 Sheet **1** of **1**

Project No. --- Station **24+00** Weather --- Driller **C.H.**
 Struct. No. --- Offset **425 ft Lt. "A"** Temp. --- Inspector ---

SAMPLE					DESCRIPTION/CLASSIFICATION and REMARKS	SOIL PROPERTIES							
No.	Type	Rec %	N Value	Depth ft Elev		q _p tsf	q _u tsf	γ _d pcf	W %	LL %	PL %	PI %	
					TOPSOIL								
SS-1	X	65	7		CL, LEAN CLAY, trace sand and gravel, stiff to soft, brown and gray	1.5			22.2	48	18	30	
SS-2	X	40	2			0.25			32.6				
SS-3	X	45	18		CL-ML, SILTY CLAY, and sand, little gravel, stiff to hard, gray, with frequent wet sand and gravel seams to 18½'	---			10.3				
SS-4	X	30	19			1.0			10.1				
SS-5	X	55	14			2.0			13.5	21	12	9	
SS-6	X	55	14			1.0			8.8				
SS-7	X	0	22										
SS-8	X	45	27		4.0			12.4					
					End of Boring at 20 ft								

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Depth ft	▽ While Drilling	▼ Upon Completion	▽ 24 hrs After Drilling
To Water	6	6	3
To Cave-in		8	6

Start **10/16/14** End **10/16/14** Rig **CME 750**
 Drilling Method **3¼" I.D. HSA ATV**
 Remarks **Backfilled with auger cuttings and bentonite chip plug near surface.**

The stratification lines represent the approximate boundary between soil/rock types and the transition may be gradual.

STABL INPUT DATA AND RESULTS REPORT

System of units used: U.S. customary units

Units of length: feet (ft)

Units of stress: psf

Units of unit weight: pcf

SOIL PROFILE (COMMAND 'PROFIL')

Project: Taylor Creek Detention

Number of Boundaries: 10

Number of Surface Boundaries: 7

Boundaries

Boundary Number	x (left point)	y (left point)	x (right point)	y (right point)	Soil type
1	0	32	26.5	32	2
2	26.5	32	32.5	32	3
3	32.5	32	38.5	32	2
4	38.5	32	41.5	34	2
5	41.5	34	51.5	34	2
6	51.5	34	60	40	1
7	60	40	80	40	1
8	26.5	32	29.5	26	2
9	29.5	26	32.5	32	2
10	51.5	34	80	34	2

Smallest x value: 0

Largest x value: 80

Smallest y value: 26

Largest y value: 40

SOIL PROPERTIES (COMMAND 'SOIL')

Number of Soils: 3

Soils

Soil	Wet Unit Wt.	Saturated Unit Wt.	Cohesive Intercept	Friction Angle	Pore Pressure Parameter	Pore Pressure Constant	Water Table
1	120	120	0	30	0	0	1
2	120	120	0	30	0	0	1
3	110	110	0	30	0	0	1

GROUNDWATER (COMMAND 'WATER')**Number of water tables: 1****Unit weight of water: 62.4****WT number 1****Was this water table used in calculations? Water table was: not suppressed**

Point No.	X	Y
1	0	34
2	41.5	34
3	51.5	34
4	80	37

ANALYSIS: PARAMETERS**Method used in calculations: Bishop****Slip surface(s): Multiple circular (CIRCL2)****Number of initiation points: 10****Number of surfaces per point: 40****x (leftmost pt of initiation zone): 42****x (rightmost pt of initiation zone): 52****x (leftmost pt of termination zone):: 60****x (rightmost pt of termination zone): 70**

Minimum elevation: 0

Segment length: 1

Ccw Direction Constraint: 0

Cw Direction Constraint: 0

ANALYSIS: RESULTS

Critical Slip Surface

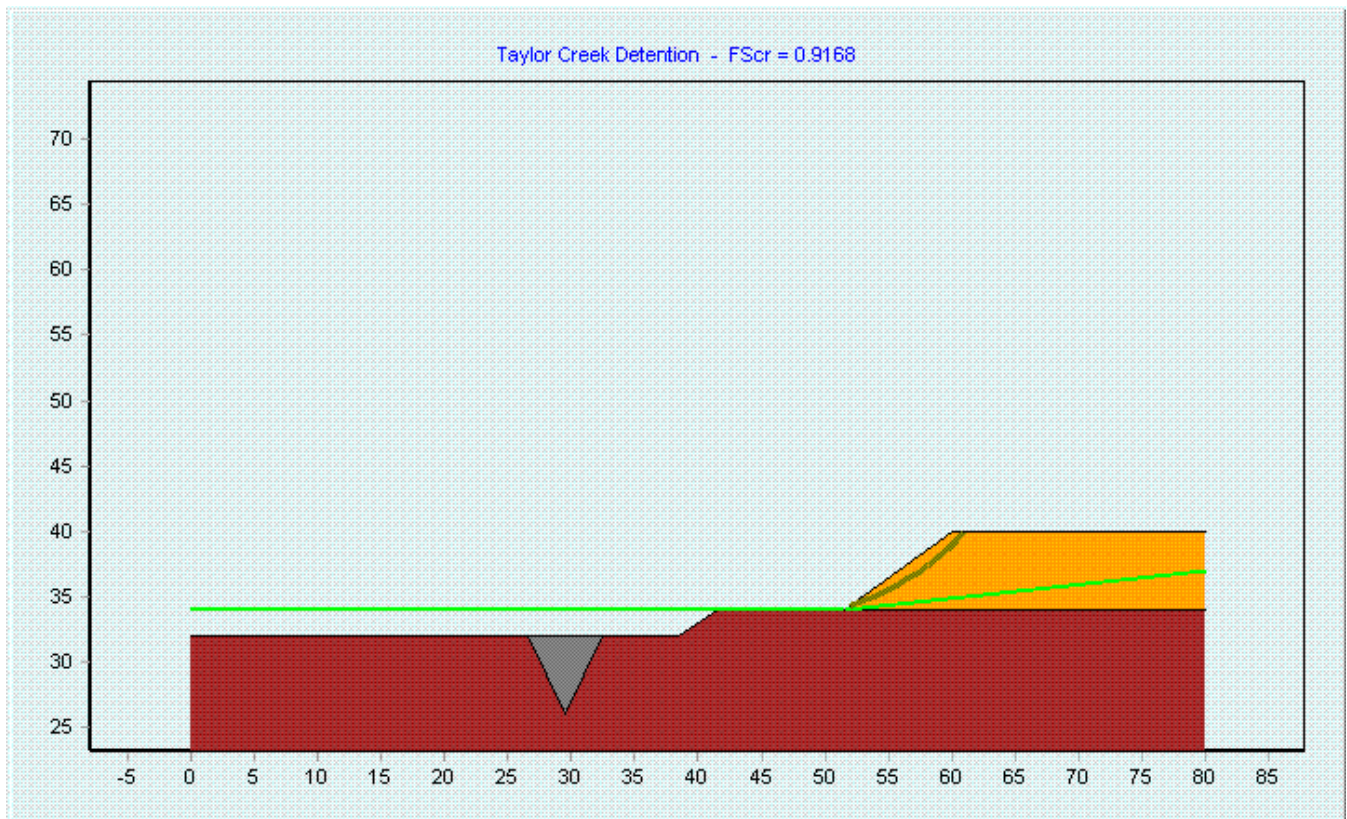
Minimum Factor of Safety = 0.9168

Factors of Safety for Ten Most Critical Slip Surfaces

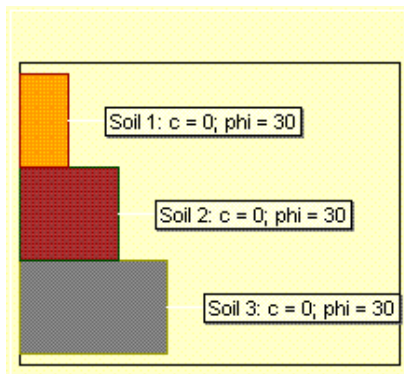
Slip Surface No.	FS
1	0.9168
2	0.9762
3	0.9834
4	1.0084
5	1.0287
6	1.0368
7	1.0698
8	1.0742
9	1.1003
10	1.1209

Figures

Slope and Most Critical Slip Surface



Soil Legend



APPENDIX C

Bridge Asbestos Survey and IDEM Form 44593

REPORT OF ASBESTOS INSPECTION

TWO (2) SMALL STRUCTURE REPLACEMENTS:

**HAMILTON COUNTY #32028
256th OVER TAYLOR CREEK
HAMILTON COUNTY, INDIANA**

**HAMILTON COUNTY #32059
CARSON ROAD OVER TAYLOR CREEK
HAMILTON COUNTY, INDIANA**

PREPARED FOR:

HAMILTON COUNTY BOARD OF COMMISSIONERS

PREPARED BY:

**DLZ INDIANA, LLC
157 E. MARYLAND STREET
INDIANAPOLIS, IN 46204**

DLZ NO.: 1363-0915-90

SEPTEMBER 20, 2013

REPORT OF ASBESTOS INSPECTION

TWO (2) SMALL STRUCTURE REPLACEMENTS:

**HAMILTON COUNTY #32028
256th OVER TAYLOR CREEK
HAMILTON COUNTY, INDIANA**

**HAMILTON COUNTY #32059
CARSON ROAD OVER TAYLOR CREEK
HAMILTON COUNTY, INDIANA**

Prepared For:

**HAMILTON COUNTY BOARD OF COMMISSIONERS
ONE HAMILTON COUNTY SQUARE, SUITE 157
NOBLESVILLE, INDIANA 46060**

Prepared By:

**DLZ INDIANA, LLC
157 E. MARYLAND STREET
INDIANAPOLIS, IN 46204**

DLZ NO.: 1361-0915-90

SEPTEMBER 20, 2013

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	PURPOSE.....	1
3.0	METHODOLOGY.....	1
4.0	RESULTS	2
5.0	CONCLUSIONS AND RECOMMENDATIONS	2
6.0	SIGNATURE OF ASBESTOS INSPECTOR	2

APPENDICIES

APPENDIX 1 – Figures

APPENDIX 2 - Limitations

1.0 INTRODUCTION

DLZ was retained by the Hamilton County Board of Commissioners to perform an asbestos inspection for the demolition and replacement of a two small structures. The small structures are Hamilton County #32028 that carries 256th over Taylor Creek and Hamilton County #32059 that carries Carson Road over Taylor Creek, both located in Hamilton County, Indiana. The locations of the above structures are depicted on Figure 1, Appendix 1.

2.0 PURPOSE

Hamilton County #32028 and #32059 are subject to the facility requirements of the Federal National Emission Standard for Hazardous Air Pollutants (NESHAP) asbestos regulations contained in the Code of Federal Regulations, Title 40, Part 61, Subpart M, (40 CFR 61, Subpart M). The NESHAP regulations require the Owner/Operator (Hamilton County) to use an accredited asbestos inspector to thoroughly inspect the affected facility or the part of the facility where demolition will occur for the presence of asbestos. This includes Category I non-friable and Category II non-friable asbestos containing materials. The Owner/Operator is then required to have all regulated asbestos containing materials (RACM) removed prior to any demolition and/or renovation operations that may result in the disturbance of these materials. The purpose of this Report of Asbestos Inspection is to document the location, quantity and condition of all asbestos containing materials (ACM) that were identified during the asbestos inspection so these materials can be properly handled prior to and during the demolition.

3.0 METHODOLOGY

DLZ conducted the asbestos inspection on August 29, 2013 using an Indiana Department of Environmental Management (IDEM) accredited Asbestos Inspector. DLZ's inspector, Mr. Daniel Stevens, has an IDEM Accreditation Number #19A003455 expiring on January 8, 2014.

DLZ's inspection methodology included the following:

- A. Inspection of the structure for potentially friable and non-friable ACM, delineation of the homogeneous areas (materials that are uniform in color and texture), and the procurement of bulk samples from suspect materials. Samples were only collected from visible, suspect friable ACM and non-friable ACM. Category I non-friable roofing materials were presumed to be asbestos containing materials.
- B. A summary of the limitations of the Asbestos Inspection Report are contained in Appendix 2.

4.0 RESULTS

Hamilton County #32028

DLZ performed an asbestos inspection of Hamilton County #32028 that carries 256th over Taylor Creek. No suspect asbestos containing homogenous areas were identified. Therefore, no bulk samples were collected or analyzed.

Hamilton County #32059

DLZ performed an asbestos inspection of Hamilton County #32059 that carries Carson Road over Taylor Creek. No suspect asbestos containing homogenous areas were identified. Therefore, no bulk samples were collected or analyzed.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the asbestos inspections of Hamilton County #32059 and #32028, no visually observed suspect asbestos containing materials were identified.

6.0 SIGNATURE OF ASBESTOS INSPECTOR

The IDEM Accredited Asbestos Inspector responsible for this report is noted as follows:

A handwritten signature in cursive script, appearing to read "Daniel J. Stevens", with a horizontal line extending from the end of the signature.

Daniel J. Stevens

Asbestos Inspector, IDEM # 19A003455

GKF/MAK

APPENDIX 1

FIGURE



IndianaMap



**REPORT OF ASBESTOS INSPECTION
TWO (2) SMALL STRUTURE REPLACEMENTS
#32028 and #32059
HAMILTON COUNTY, INDIANA**

Scale: NTS

Figure 1

APPENDIX 2

LIMITATIONS

LIMITATIONS

The asbestos inspection included only the sampling and quantification of all visible suspect asbestos containing materials. The asbestos inspection did not include the removal of any permanent structures (i.e. walls, floors, and ceilings) to identify potential hidden suspect asbestos containing materials. As a result, the potential exists for unforeseen additional quantities of asbestos containing materials to be present in these structures due to these materials not being readily observable or accessible.

The results of this inspection are based on the condition of the structures and the materials on the date on this inspection. Any change in these conditions may result in different recommendations.

APPENDIX D
Water of the U.S. Report

WATERS OF THE U.S. REPORT

**HAMILTON COUNTY #32028
256th OVER TAYLOR CREEK
HAMILTON COUNTY, INDIANA**

AND

**HAMILTON COUNTY #32059
CARSON ROAD OVER TAYLOR CREEK
HAMILTON COUNTY, INDIANA**

Prepared By:


DLZ INDIANA, LLC
157 E. MARYLAND STREET
INDIANAPOLIS, IN 46204

September 25, 2013

WATERS OF THE U.S. REPORT

Two (2) Small Structure Replacements Small Structure #32028 - 256th Over Taylor Creek, and Small Structure #32059 – Carson Road Over Taylor Creek Hamilton County, Indiana

Report By: Dan Stevens, DLZ Environmental Scientist
September 25, 2013

Introduction

DLZ conducted a “Waters of the United States” determination on August 29, 2013 for two small structure replacement projects in Hamilton County, Indiana. The small structures are Hamilton County #32028 that carries 256th over Taylor Creek and Hamilton County #32059 that carries Carson Road over Taylor Creek. The small structures are located in Sections 20, 21, and 29, Township 20N, Range 4E of Hamilton County, Indiana.

The USGS Topographic Maps of the USGS Arcadia Quadrangle shows Taylor Creek as a blue-line stream flowing through the project area of both small structures (**See Figure 1**). In addition, two pond features are located along 256th both southwest and northeast of the #32028 project site. No other water features are shown in the project area.

The National Wetlands Inventory (NWI) identifies the above two ponds as PUBHX (palustrine, unconsolidated bottom, permanently flooded, excavated) features (**See Figure 2**).

According to the Soil Survey Geographic (SSURGO) Database for Hamilton County, Indiana, the following soil units are located in the project area:

- Brookston silty clay loam (Br)
- Crosby silt loam, 0-3% slopes (CrA)
- Miami silt loam, 0-2% slopes (MmA)
- Miami silt loam, 2-6% slopes, eroded (MmB2)
- Patton silty clay loam (Pn)
- Shoals silt loam (Sh)
- Sloan silty clay loam, sandy substratum (Sx)

Brookston (Br), Patton silty clay loam (Pn), and Sloan silty clay loam, sandy substratum (Sx) are listed as hydric soil units.

See **Figures 1-3** for maps of the project area. See **Figure 4** for pictures.

Field Reconnaissance

The field inspection confirmed that Taylor Creek displayed Waters of the US parameters including Ordinary High Water Mark (OHWM) and exhibited bed and bank features at both of the small structure locations.

The study limits were also inspected for the presence of jurisdictional wetlands in accordance with the delineation procedures and wetland criteria outlined in the 1987 Corps of Engineers Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). No jurisdictional wetland features were observed in the project limits. The two NWI identified PUBHX wetlands were observed in the field and it was confirmed that these features will be avoided by the project. Wetland data sheets are attached. Following is a summary of each sample point:

Sample Point 1 did not meet all three wetland criteria. The plants were smooth brome (*Bromis inermis*, FACU), corn (*Zea mays*, UPL), and milkweed (*Asclepias syriaca*, FACU). These plants do not meet the hydrophytic plant criteria. No hydrology indicators were observed. The soil was 10YR 3/2 silt loam from 0 to 18 inches with no mottles. No hydric soil indicators were observed. This sample point does not meet the hydrophytic vegetation, wetland hydrology, or the hydric soils criteria and was therefore determined to not be within a wetland.

Sample Point 2 did not meet all three wetland criteria. The plants were smooth brome (*Bromis inermis*, FACU), corn (*Zea mays*, UPL), black walnut (*Juglans nigra*, FACU), and Canadian thistle (*Cirsium arvense*, FACU). These plants do not meet the hydrophytic plant criteria. No hydrology indicators were observed. The soil was 10YR 3/2 silt loam from 0 to 18 inches with no mottles. No hydric soil indicators were observed. This sample point does not meet the hydrophytic vegetation, wetland hydrology, or the hydric soils criteria and was therefore determined to not be within a wetland.

Conclusions

The USGS Topographic Map of the Arcadia Quadrangle shows Taylor Creek as a blue-line stream flowing through the project area of both small structures. The field inspection confirmed that Taylor Creek had Waters of the US parameters including Ordinary High Water Mark (OHWM) and exhibited bed and bank features. No jurisdictional wetland features were observed in the project limits. The two NWI identified PUBHX wetlands were observed in the field and it was confirmed that these features will be avoided by the project.

The final determination of jurisdictional waters is ultimately made by the U.S. Army Corps of Engineers and this report is our best judgment based on the guidelines set forth by the Corps.

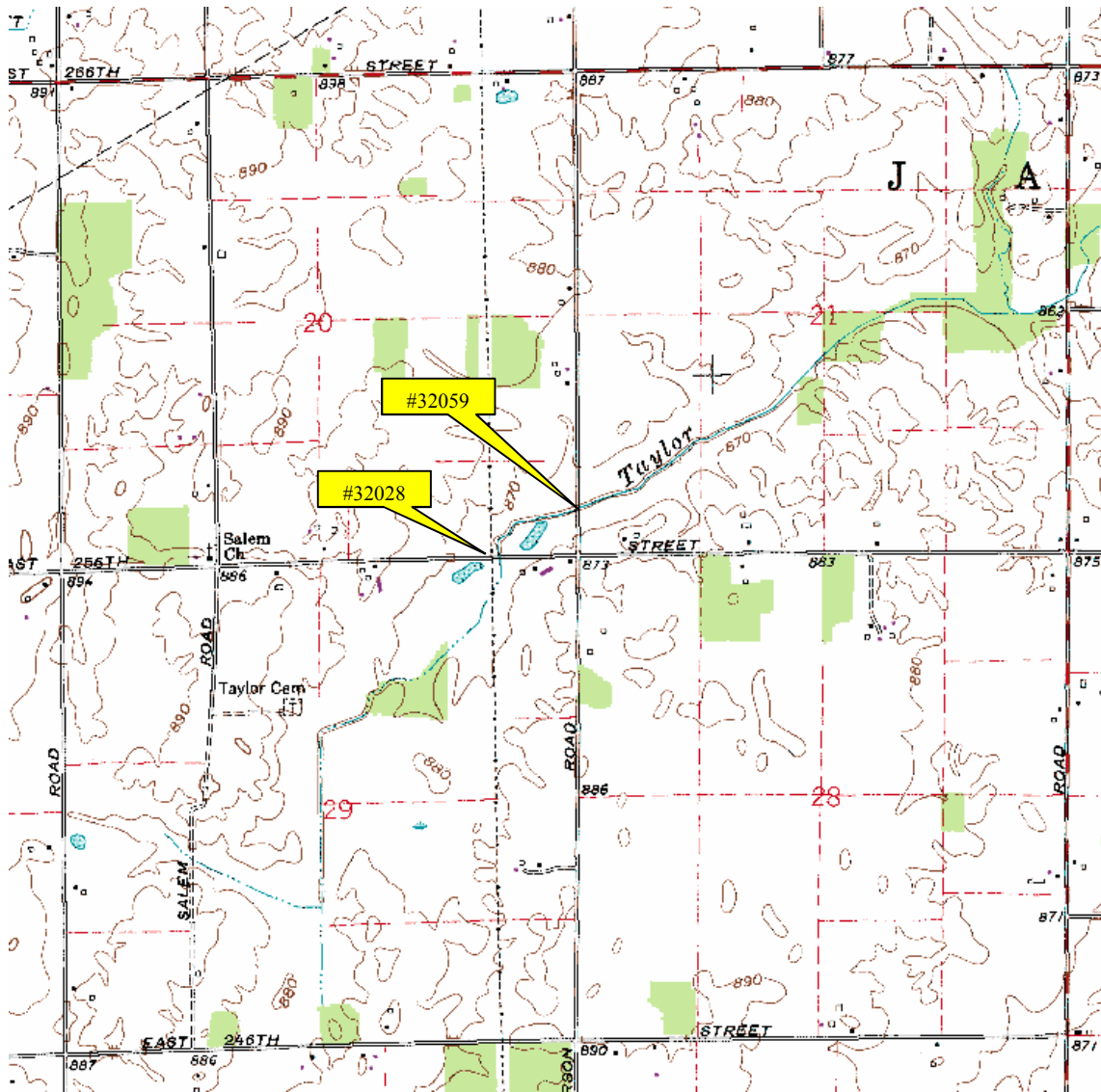
Table 1: Stream Summary
Hamilton County Small Structure #32028
256th Over Taylor Creek
Hamilton County, Indiana

Stream Name	Photos	Lat (N)	Lon (W)	OHWM		USGS Blue line?	Riffles Pools?	Quality	Likely Water of U.S.?
				Width (feet)	Depth (feet)				
Taylor Creek	1, 4	40.161304°	-86.091699°	25	5	yes	yes	fair	yes

Table 2: Stream Summary
Hamilton County Small Structure #32059
Carson Road Over Taylor Creek
Hamilton County, Indiana

Stream Name	Photos	Lat (N)	Lon (W)	OHWM		USGS Blue line?	Riffles Pools?	Quality	Likely Water of U.S.?
				Width (feet)	Depth (feet)				
Taylor Creek	1, 2, 4	40.162679°N	-86.088556°W	25	5	yes	yes	fair	yes

USGS Quadrangle Map



USGS Arcadia Quadrangle Map



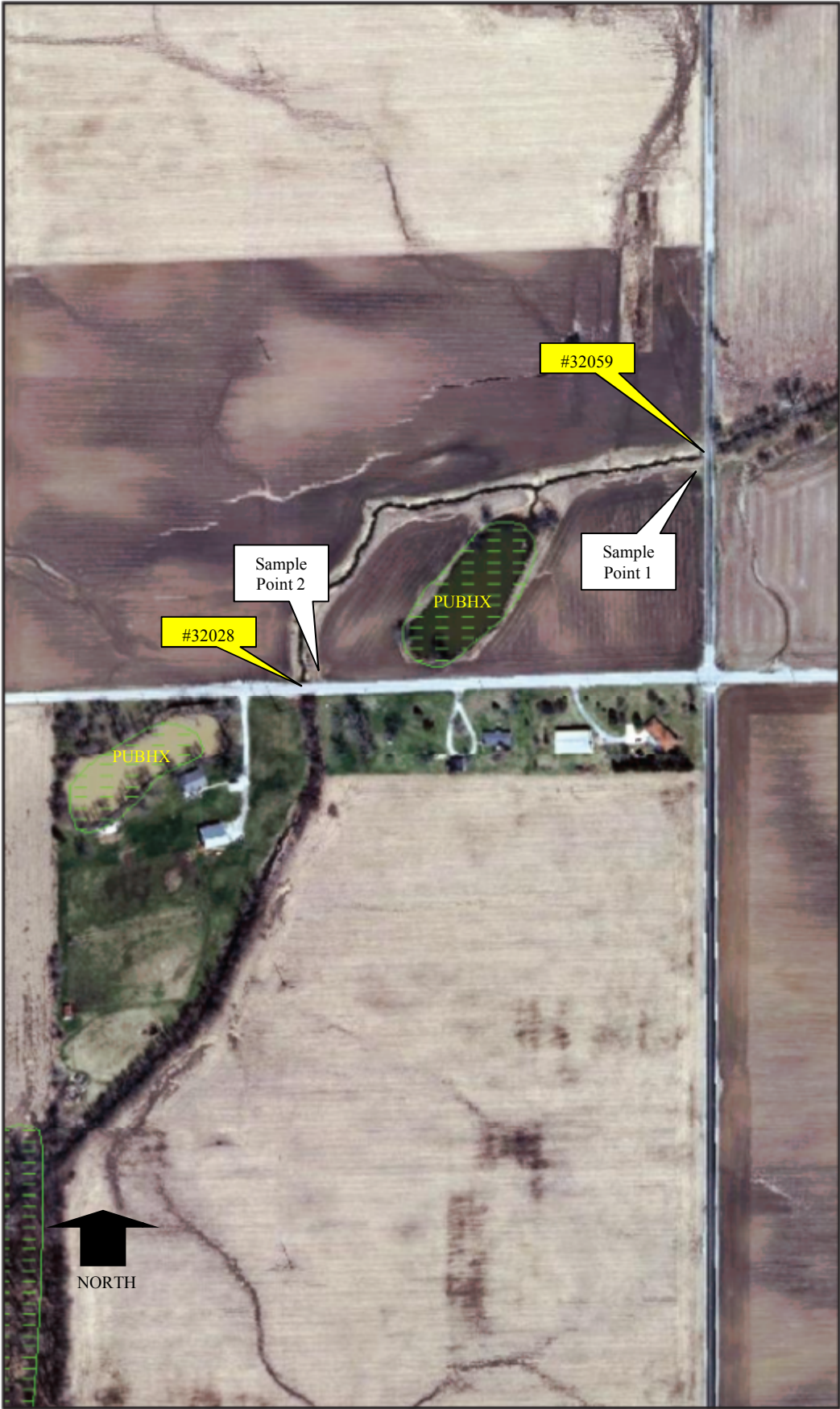
**WATERS OF THE U.S. REPORT
TWO (2) SMALL STRUTURE REPLACEMENTS
#32028 and #32059
HAMILTON COUNTY, INDIANA**

Scale: 1:24,000

Figure: 1

NWI Map

Date: 9/18/2013



Legend

- Wetland Points
- Wetlands
- Wetland Lines

Author:

0 0.08 mi

IndianaMAP

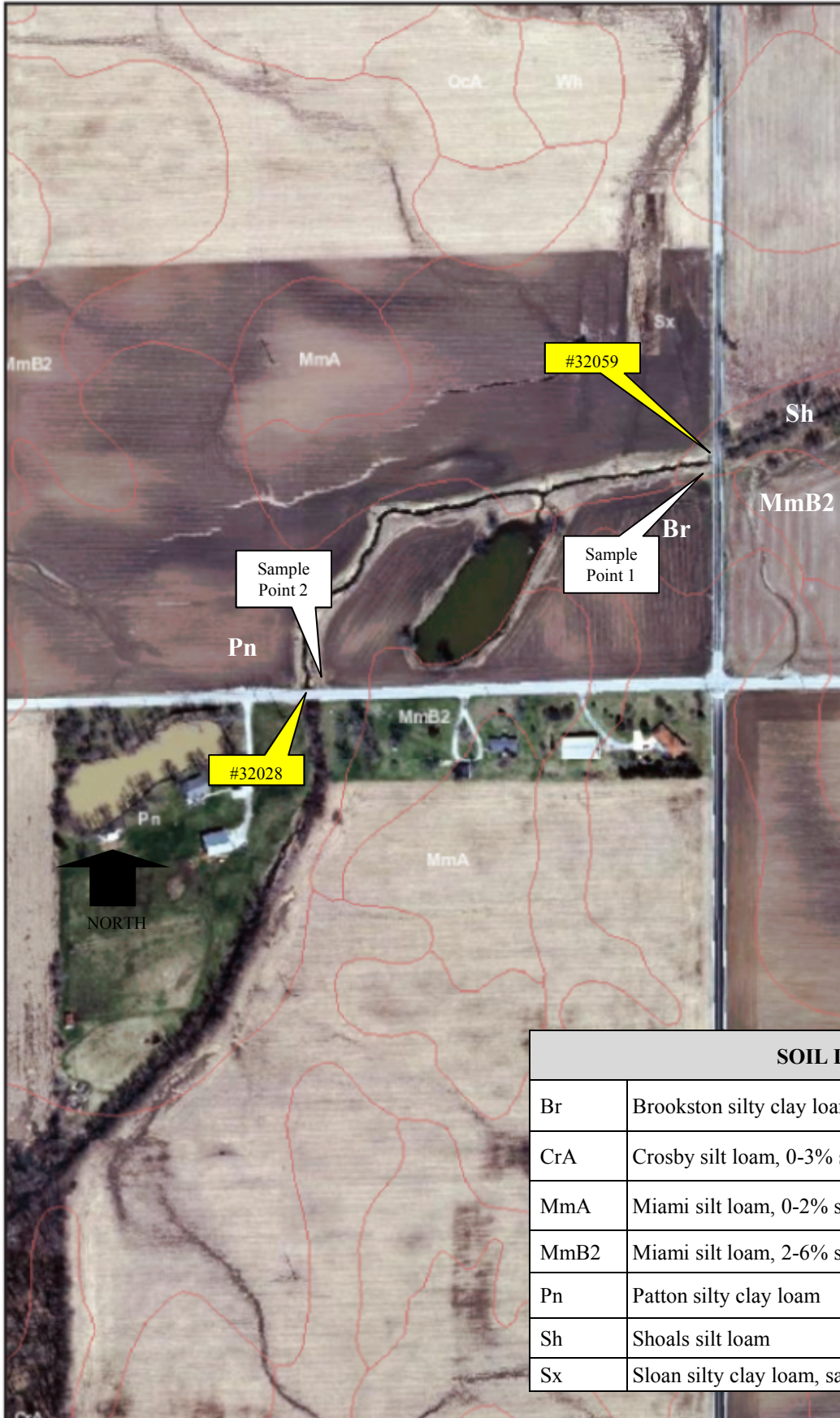
Figure: 2

Soil Survey

Date: 9/18/2013

Legend

Soil Survey (SSURGO) 2012



SOIL LEGEND

Br	Brookston silty clay loam	Hydric
CrA	Crosby silt loam, 0-3% slopes	Non-hydric
MmA	Miami silt loam, 0-2% slopes	Non-hydric
MmB2	Miami silt loam, 2-6% slopes, eroded	Non-hydric
Pn	Patton silty clay loam	Hydric
Sh	Shoals silt loam	Non-hydric
Sx	Sloan silty clay loam, sandy substratum	Hydric

Author:

0 0.08 mi

IndianaMAP

Figure: 3

256th over Taylor Creek - #33028



Photo 1: View looking north



Photo 2: View looking east



Photo 3: View looking west



Photo 4: View looking south



**WATERS OF THE U.S. REPORT
TWO (2) SMALL STRUTURE REPLACEMENTS
#32028 and #32059
HAMILTON COUNTY, INDIANA**

Scale: NTS

Appendix A

Carson Road over Taylor Creek - #33059



Photo 1: View looking west at culvert



Photo 2: View looking west



Photo 3: View looking south



Photo 4: View looking east away from structure



**WATERS OF THE U.S. REPORT
TWO (2) SMALL STRUTURE REPLACEMENTS
#32028 and #32059
HAMILTON COUNTY, INDIANA**

Scale: NTS

Appendix A

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site #32059, Carson Road over Taylor Creek City/County: Hamilton County Sampling Date: 8/29/2013
 Applicant/Owner: Hamilton County State: Indiana Sampling Point: upland
 Investigator(s): Dan Stevens Section, Township, Range: S20, T20N, R4E
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none
 Slope (%): Lat: 40.162572° Long: 86.088652° Datum:
 Soil Map Unit Name Shoals silt loam (Sh) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation, soil, or hydrology significantly disturbed?

Are "normal circumstances"

Are vegetation, soil, or hydrology naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? N	Is the sampled area within a wetland? N If yes, optional wetland site ID:
Hydric soil present? N	
Wetland hydrology present? N	
Remarks: (Explain alternative procedures here or in a separate report.) The sample point does not meet the three wetland criteria and is considered upland.	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size:)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across all Strata: 2 (B) Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)
1					
2					
3					
4					
5					
		0 = Total Cover			
Sapling/Shrub stratum	(Plot size:)				Prevalence Index Worksheet Total % Cover of: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 70 x 4 = 280 UPL species 40 x 5 = 200 Column totals 110 (A) 480 (B) Prevalence Index = B/A = 4.36
1					
2					
3					
4					
5					
		0 = Total Cover			
Herb stratum	(Plot size:)				Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<i>Bromus inermis</i>	50	Y	FACU	
2	<i>Zea mays</i>	40	Y	UPL	
3	<i>Asclepias syriaca</i>	20	N	FACU	
4					
5					
6					
7					
8					
9					
		110 = Total Cover			
Woody vine stratum	(Plot size:)				Hydrophytic vegetation present? N
1					
2					
		0 = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)

Hydrophytic vegetation was not observed.

SOIL

Sampling Point: upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 3/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

Hydric soil indicators were not observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> 0 </u>
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> 0 </u>
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> 0 </u>

 (includes capillary fringe)
Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators were not observed.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site #32028, 256th over Taylor Creek City/County: Hamilton County Sampling Date: 8/29/2013
 Applicant/Owner: Hamilton County State: Indiana Sampling Point: upland
 Investigator(s): Dan Stevens Section, Township, Range: S20, T20N, R4E
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none
 Slope (%): Lat: 40.161367° Long: 86.091610° Datum:
 Soil Map Unit Name Patton silty clay loam (Pn) NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation, soil, or hydrology significantly disturbed?

Are "normal circumstances"

Are vegetation, soil, or hydrology naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID:
Hydric soil present?	N	
Wetland hydrology present?	N	

Remarks: (Explain alternative procedures here or in a separate report.)

The sample point does not meet the three wetland criteria and is considered upland.

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size:)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across all Strata: 3 (B) Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)
1					
2					
3					
4					
5					
		0 = Total Cover			Prevalence Index Worksheet Total % Cover of: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 90 x 4 = 360 UPL species 40 x 5 = 200 Column totals 130 (A) 560 (B) Prevalence Index = B/A = 4.31
Sapling/Shrub stratum (Plot size:)					
1	<i>Juglans nigra</i>	20	Y	FACU	
2					
3					
4					
5					
		20 = Total Cover			Hydrophytic Vegetation Indicators: Rapid test for hydrophytic vegetation Dominance test is >50% Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
Herb stratum (Plot size:)					
1	<i>Bromus inermis</i>	50	Y	FACU	
2	<i>Zea mays</i>	40	Y	UPL	
3	<i>Cirsium arvense</i>	20	N	FACU	
4					
5					
6					
7					
8					
9					
10					
		110 = Total Cover			Hydrophytic vegetation present? N
Woody vine stratum (Plot size:)					
1					
2					
		0 = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)

Hydrophytic vegetation was not observed.

SOIL

Sampling Point: upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 3/2	100					silt loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

Hydric soil indicators were not observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> 0 </u>
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> 0 </u>
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> 0 </u>

 (includes capillary fringe)
Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators were not observed.

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

- A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):** September 25, 2013
- B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:**
Mr. Daniel J. Stevens
DLZ Indiana, LLC
2211 E. Jefferson Blvd.
South Bend, IN 46615
- C. DISTRICT OFFICE, FILE NAME, AND NUMBER:** Louisville District,
Hamilton County #32028 (256th over Taylor Creek) and Hamilton County
#32059 (Carson Road over Taylor Creek)

**D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES
AT DIFFERENT SITES)**

State: Indiana County/parish/borough: Hamilton County City: n/a
Center coordinates of site (lat/long in degree decimal format):
Lat.: , Long.:
Universal Transverse Mercator:
Name of nearest waterbody: Taylor Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: ___ linear feet: width ___(ft) and/or ___ acres.

Cowardin Class:

Stream Flow: Intermittent

Wetlands: acres.

Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10
waters:

Tidal: N/A

Non-Tidal: N/A

**E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT
APPLY):**

☐ Office (Desk) Determination. Date:

X Field Determination. Date(s): August 29, 2013

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
Taylor Creek, at #32028	40.161304°N	-86.091699°W	Riverine	0.17 acres	non-section 10 – non-wetland
Taylor Creek, at #32059	40.162679°N	-86.088556°W	Riverine	0.17 acres	non-section 10 – non-wetland

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

X Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: DLZ Indiana, LLC.

X Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

X U.S. Geological Survey map(s). Cite scale & quad name: Arcadia, 1:24,000 scale

X USDA Natural Resources Conservation Service Soil Survey. Citation: USDA Soil Survey of Hamilton County

☒ National wetlands inventory map(s). Cite name: Arcadia.

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

X Photographs: X Aerial (Name & Date): 2012 NAIP.

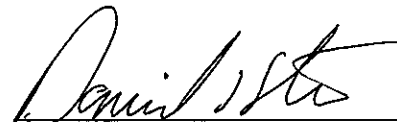
Or X Other (Name & Date): Site Photographs, 8/29/2013.

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and date of
Regulatory Project Manager
(REQUIRED)

 9/25/13

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

APPENDIX E

Permits



Hamilton County Surveyor's Office

One Hamilton County Square, Suite 188

Noblesville, Indiana 46060

Office: (317) 776-8495 Fax: (317) 776-9628

Crossing Permit

Permit Number: C-2015-00012 **Issue Date:** March 03, 2015 **Temporary:** N
Drain Name: TAYLOR CREEK DRAIN **Project Name:** SS# 32028
Project Location: 256th & Cal Carson
Crossing Type: Other **# of Crossings:** 2 **Engineering Firm:** DLZ
Purpose: Replace bridges **Plan Project Id:** N/A

Applicant:

DLZ ENGINEERS
36 S. PENNSYLVANIA ST.
INDIANAPOLIS, IN 46204

Contact: Ron Hull, DLZ
317-633-4120
- -

Conditions for Approval:

Call the Hamilton County Surveyor's Office at 317-776-8495 48 hours in advance to schedule inspection.

Parcels:

Parcel No: 03-02-20-00-00-017.000 Jackson

APPROVED

Surveyor:

3/3/2015

Date:



Hamilton County Surveyor's Office

One Hamilton County Square, Suite 188

Noblesville, Indiana 46060

Office: (317) 776-8495 Fax: (317) 776-9628

Crossing Permit

Permit Number: C-2015-00013 **Issue Date:** March 03, 2015 **Temporary:** N
Drain Name: TAYLOR CREEK DRAIN **Project Name:** SS#32059
Project Location: 256th & Cal Carson
Crossing Type: Other **# of Crossings:** 1 **Engineering Firm:** DLZ
Purpose: Replace Cal Carson Bridge **Plan Project Id:** N/A

Applicant:

DLZ ENGINEERS
36 S. PENNSYLVANIA ST.
INDIANAPOLIS, IN 46204

Contact: Ron Hull, DLZ
317-633-4120
- -

Conditions for Approval:

Call the Hamilton County Surveyor's Office at 317-776-8495 48 hours in advance to schedule inspection.

Parcels:

Parcel No: 03-02-21-00-00-015.000 Jackson

Surveyor:

3/3/2015

Date:

APPROVED



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

February 26, 2015

VIA CERTIFIED MAIL 91 7190 0005 2710 0038 4942

Mr. Faraz Khan
Hamilton County Highway Department
1700 South 10th Street
Noblesville, IN 46060

RECEIVED

MAR 02 2015

HAMILTON CO.
HIGHWAY DEPT.

Dear Mr. Faraz:

Re: Section 401 Water Quality Certification
Project: Taylor Creek at 256th and Cal Carson
IDEM No.: 2015-015-29-JBT-A
County: Hamilton

The Office of Water Quality has reviewed your application for Section 401 Water Quality Certification dated and received January 20, 2015. According to the application, you propose to replace the small structures carrying 256th Street and Cal Carson Road over Taylor Creek. As part of the project you propose to install bridge piers which will impact 109 linear feet of stream; place riprap along 46 linear feet of Taylor Creek as scour protection for the bridges; and place 176 linear feet of riprap along other sections of Taylor Creek as bank armourment. In addition, you propose to re-grade 1154 linear feet of stream to form a three-stage ditch. The project is located in parts of Sections 20, 21, and 29, Township 20 North, Range 4 East in Hamilton County.

Based on available information, it is the judgment of this office that the proposed project will comply with the applicable provisions of 327 IAC 2 and Sections 301, 302, 303, 306, and 307 of the Clean Water Act if you comply with the conditions set forth below. Therefore, subject to the following conditions, the Indiana Department of Environmental Management (IDEM) hereby grants Section 401 Water Quality Certification for the project described in your application received January 20, 2015. Any changes in project design or scope not detailed in the application described above or modified by the conditions below are not authorized by this certification.

CONDITIONS OF THE SECTION 401 WATER QUALITY CERTIFICATION:

You shall:

- 1) Allow the commissioner or an authorized representative of the commissioner (including an authorized contractor), upon the presentation of credentials:



- a) to enter your property, including impact and mitigation site(s);
 - b) to have access to and copy at reasonable times any records that must be kept under the conditions of this certification;
 - c) to inspect, at reasonable times, any monitoring or operational equipment or method; collection, treatment, pollution management or discharge facility or device; practices required by this certification; and any mitigation wetland site;
 - d) to sample or monitor any discharge of pollutants or any mitigation site.
- 2) Complete all approved discharges no later than two (2) years of the date of issuance of this Section 401 Water Quality Certification. You may request a one (1) year extension to the Section 401 Water Quality Certification by submitting a written request ninety (90) days prior to the deadline stated above. The written request shall contain an account of which discharges and mitigation have been completed and list the reasons an extension is requested.
 - 3) Deposit any dredged material in a contained upland disposal area to prevent sediment runoff to any waterbody.
 - 4) Install erosion control methods prior to any soil disturbance to prevent soil from leaving the construction site. Appropriate erosion control methods include, but are not limited to, straw bale barriers, silt fencing, erosion control blankets, phased construction sequencing, and earthen berms. Monitor and maintain erosion control structures and devices regularly, especially after rain events, until all soils disturbed by construction activities have been permanently stabilized.
 - 5) Allow no silt basins to be constructed within Taylor Creek.
 - 6) Seed, mulch, and use other appropriate methods as needed to stabilize the new stream channel at the time of excavation and reshaping.
 - 7) Allow no construction equipment, temporary run-arounds, coffer dams, temporary causeways, temporary crossings, or other such structures to enter or be constructed within any waterbody, unless specifically stated, depicted, or detailed in the aforementioned correspondence and project plans. A modification of this Section 401 Water Quality Certification is required from this office if any of the aforementioned items are needed for project construction.
 - 8) Remove any temporary causeway or other approved temporary structures used to facilitate construction or access upon completion of construction activities.

This certification does not relieve you of the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from IDEM or any other agency or person. You may wish to contact the Indiana Department of Natural Resources at 317-232-4160 (toll free at 877-928-3755) concerning the

possible requirement of natural freshwater lake or floodway permits. In addition, you may wish to contact IDEM's Storm Water Permits Section at 317-233-1864 concerning the possible need for a 327 IAC 15-5 (Rule 5) permit if you plan to disturb greater than one (1) acre of soil during construction.

This certification does not:

- (1) authorize impacts or activities outside the scope of this certification;
- (2) authorize any injury to persons or private property or invasion of other private rights, or any infringement of federal, state or local laws or regulations;
- (3) convey any property rights of any sort, or any exclusive privileges;
- (4) preempt any duty to obtain federal, state or local permits or authorizations required by law for the execution of the project or related activities; or
- (5) authorize changes in the plan design detailed in the application.

Failure to comply with the terms and conditions of this Section 401 Water Quality Certification may result in enforcement action against you. If an enforcement action is pursued, you could be assessed up to \$25,000 per day in civil penalties. You may also be subject to criminal liability if it is determined that the Section 401 Water Quality Certification was violated willfully or negligently.

This certification is effective eighteen (18) days from the mailing of this notice unless a petition for review and a petition for stay of effectiveness are filed within this 18-day period. If a petition for review and a petition for stay of effectiveness are filed within this period, any part of the certification within the scope of the petition for stay is stayed for fifteen (15) days, unless or until an Environmental Law Judge further stays the certification in whole or in part.

This decision may be appealed in accordance with IC 4-21.5, the Administrative Orders and Procedures Act. The steps that must be followed to qualify for review are:

- 1) You must petition for review in writing that states facts demonstrating that you are either the person to whom this decision is directed, a person who is aggrieved or adversely affected by the decision, or a person entitled to review under any law.
- 2) You must file the petition for review with the Office of Environmental Adjudication (OEA) at the following address:

Office of Environmental Adjudication
100 North Senate Avenue
IGCN Room N501
Indianapolis, IN 46204

- 3) You must file the petition within eighteen (18) days of the mailing date of this decision. If the eighteenth day falls on a Saturday, Sunday, legal holiday, or other day that the OEA offices are closed during regular business hours, you may file the petition the next day that the OEA offices are open during regular business hours. The petition is deemed filed on the earliest of the following dates: the date it is personally delivered to OEA; the date that the envelope containing the petition is postmarked if it is mailed by United States mail; or, the date it is shown to have been deposited with a private carrier on the private carrier's receipt, if sent by private carrier.

Identifying the certification, decision, or other order for which you seek review by number, name of the applicant, location, or date of this notice will expedite review of the petition.

Note that if a petition for review is granted pursuant to IC 4-21.5-3-7, the petitioner will, and any other person may, obtain notice of any prehearing conferences, preliminary hearings, hearings, stays, and any orders disposing of the proceedings by requesting copies of such notices from OEA.

If you have procedural questions regarding filing a petition for review you may contact the Office of Environmental Adjudication at 317-232-8591.

If you have any questions about this certification, please contact Mr. James Turner, Project Manager, of my staff by phone at 317-234-6352, or by e-mail at JTurner2@IDEM.IN.gov or you may contact the Office of Water Quality through the IDEM Environmental Helpline (1-800-451-6027).

Sincerely,



Martha Clark Mettler
Deputy Assistant Commissioner
Office of Water Quality

cc: Jim Thomas, USACE-Louisville District
Marissa Reed, USFWS
Brian Boszor, IDNR
John South, Hamilton County Soil and Water Conservation District
Jon LaTurner, DLZ Indiana, LLC



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE KY 40201-0059
FAX: (502) 315-6677
<http://www.lrl.usace.army.mil/>

RECEIVED

MAY 21 2015

HAMILTON CO. HIGHWAY DEPT.

May 14, 2015

Operations Division
Regulatory Branch (North)
ID No. LRL-2015-69-jlt

Mr. Faraz J. Khan
Hamilton County Engineer
Hamilton County Board of Commissioners
1700 South 10th Street
Noblesville, Indiana 46060

Dear Mr. Khan:

This is in response to your application received January 22, 2015, and additional information received April 14, 2015, for a Department of the Army Permit to replace two single-span, three sided concrete box culverts with concrete wingwalls and concrete guardrails. Also, riprap will be placed along the bank of Taylor Creek. There will also be reshaping of stream to form a three-stage ditch. The project is identified as the 32028 and 32059 Hamilton County Bridge replacements. The two structures are located on 256th Street and Cal Carson Road over Taylor Creek, in Arcadia, Hamilton County, Indiana (Latitude: 40.162198°; Longitude:-86.090949°).

Under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA), the Louisville, Detroit, and Chicago Districts issued Regional General Permit (RGP) No. 1 on December 15, 2014, for certain activities having minimal impact in Indiana. We have verified that your proposed work described below is authorized under the RGP. Therefore, you may proceed with the work subject to the enclosed general conditions, the Indiana Department of Environmental Management (IDEM) Section 401 Water Quality Certification (WQC) dated February 26, 2015, and the noted special condition. Please note that IDEM must be notified as a condition of the WQC.

The following work is authorized:

To replace two bridges requiring 331 feet of impacts to Taylor Creek. Also, re-grading 1,154 linear feet of stream to form a three-stage ditch.

Special Condition:

No trees shall be cut or removed from the site between April 1 and September 30.

Any new construction activity other than that described above may not qualify for the RGP. If your plans change or if additional activities are proposed, please submit revised plans to this office for review prior to construction.

Enclosed is a "Notice of Authorization" to be displayed at the construction site in a conspicuous place. Upon completion of the work authorized by this RGP, the enclosed Completion Report form must be completed and returned to this office. This authorization is valid until December 15, 2019.

A copy of this letter will be sent to the Indiana Department of Environmental Management (see enclosure for address).

If you have any questions concerning this matter, please contact this office at the above address, ATTN: CELRL-OPF-N or call me at (502) 315-6710. Any correspondence on this matter should refer to our ID Number LRL-2015-69-jlt.

Sincerely,



Jim Thomas
Project Manager, North Section
Regulatory Branch

Enclosures

INDIANA REGIONAL GENERAL PERMIT NO. 001

1. In accordance with Title 33 CFR 325.5(b)(2), and 325.5(c)(1), as published in the Federal Register, Volume 51, No. 219, the U.S. Army Corps of Engineers Districts of Louisville, Detroit and Chicago (the Districts), have reissued a Regional General Permit (RGP) for certain activities in waters of the United States within the State of Indiana under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA).

2. The RGP affords the Districts a means to authorize, on a regional basis, categories of activities that are similar in nature and cause minimal individual and cumulative impacts to the aquatic environment while eliminating unnecessary duplication of regulatory control. In this case, the Districts have been effective in reducing duplication with the Indiana Department of Environmental Management (IDEM) Section 401 Water Quality Certification (WQC) process.

This RGP suspends several Nationwide Permits (NWP) (see Suspensions section of this document). The RGP has simplified and enhanced the effective regulation of waters and wetlands in Indiana and would further assure that only those activities that have minimal individual and cumulative impacts would be authorized by this RGP.

Structures and/or work in or affecting the course, location, condition, or capacity of a navigable water that does not involve the discharge of dredged or fill material requires authorization under Section 10 of the Rivers and Harbors Act and no WQC is required. In this case, the Districts would continue to evaluate the Section 10 activity proposed and authorize only those activities under the RGP that have minimal individual and cumulative impacts.

Certain activities that impact 1 acre or less of waters of the United States and have a valid WQC would be eligible for this RGP. Under the RGP, the Districts will continue to coordinate proposed activities with the U.S. Fish and Wildlife Service (USFWS) to satisfy the requirements of the Endangered Species Act and the Indiana State Historic Preservation Officer (SHPO) to satisfy the requirements of the National Historic Preservation Act.

Effective Date: December 15, 2014

Duration: The RGP will be effective for five (5) years, expiring on December 15, 2019.

Activities Covered by the Regional General Permit:

This RGP authorizes activities associated with the construction or installation of facilities or structures, and/or work that are detailed in the "Activity Categories and Conditions" section of this document, and have been granted a WQC from IDEM, if required.

SUSPENSIONS:

The following Nationwide Permits are proposed for suspension in Indiana. The proposed RGP would be used to authorize activities in place of suspended Nationwide Permits:

- 13 Bank Stabilization
- 14 Linear Transportation Projects
- 18 Minor Discharges
- 29 Residential Developments
- 36 Boat Ramps
- 39 Commercial and Institutional Developments
- 40 Agricultural Activities
- 41 Reshaping Existing Drainage Ditches
- 42 Recreational Facilities
- 43 Stormwater Management Facilities
- 44 Mining Activities

The NWP's that would not be suspended and would be used in lieu of the RGP are:

- 1 Aids to Navigation
- 2 Structures in Artificial Canals
- 3 Maintenance
- 4 Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
- 5 Scientific Measurement Devices
- 6 Survey Activities
- 7 Outfall Structures and Associated Intake Structures
- 8 Oil and Gas Structures on the Outer Continental Shelf
- 9 Structures in Fleeting and Anchorage Areas
- 10 Mooring Buoys
- 11 Temporary Recreational Structures
- 12 Utility Line Activities
- 15 U.S. Coast Guard Approved Bridges
- 16 Return Water from Upland Contained Disposal Areas
- 17 Hydropower Projects
- 19 Minor Dredging
- 20 Oil Spill Cleanup
- 21 Surface Coal Mining Operations
- 22 Removal of Vessels
- 23 Approved Categorical Exclusions
- 24 Indian Tribe or State Administered Section 404 Programs
- 25 Structural Discharges
- 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities
- 28 Modifications of Existing Marinas
- 30 Moist Soil Management for Wildlife
- 31 Maintenance of Existing Flood Control Facilities
- 32 Completed Enforcement Actions
- 33 Temporary Construction, Access and Dewatering
- 34 Cranberry Production Activities
- 35 Maintenance Dredging of Existing Basins

- 37 Emergency Watershed Protection and Rehabilitation
- 38 Cleanup of Hazardous and Toxic Waste
- 45 Repair of Uplands Damaged by Discrete Events
- 46 Discharges in Ditches
- 47 Pipeline Safety Program Designated Time Sensitive Inspections and Repairs
- 48 Existing Commercial Shellfish Aquaculture Activities
- 49 Coal Re-Mining Activities
- 50 Underground Coal Mining Activities
- 51 Land-Based Renewable Energy Generation Facilities
- 52 Water-Based Renewable Energy Generation Pilot Projects

The Corps will determine the appropriate permit type for authorizing proposed activities.

MAXIMUM LIMITATIONS:

The following impact limitations apply to all activities authorized by the RGP, with the exception of bank stabilization and agricultural activities. For impact limitations pertaining to these activities, see the "Activity Categories and Conditions" section of this document for further discussion regarding maximum limitations.

1. Loss of waters of the United States (U.S.), including wetlands, is limited to 1.0 acre or less;
2. Loss of waters of the U.S. is limited to 1,500 linear feet of stream channel, not to exceed 1.0 acre;
3. Dredging in navigable waters is limited to 10,000 cubic yards;
4. Structures and fills for docking and mooring are limited to similar permitted structures and fills in the vicinity;
5. "Piecemealing" of projects in order to meet these thresholds will not be allowed.

RESTRICTIONS: The work authorized by this RGP would also be subject to the attached General Conditions and any other Special Conditions necessary to reduce impacts to the minimum level.

MITIGATION REQUIREMENTS

The District Engineer may determine that the adverse effects of the proposed activity are minimal, and require no mitigation. Otherwise, mitigation will be required as follows, with the exception of bank stabilization, minor discharges, excavation, and agricultural activities (see "Activity Categories and Conditions" section of this document for further discussion regarding mitigation requirements).

1. Impacts resulting from the loss of waters by relocation, encapsulation, or channelization of greater than 300 linear feet of ephemeral, intermittent or perennial stream shall require mitigation;
2. The loss of greater than 0.10 acre of special aquatic sites (including wetlands) and/or loss of waters of the U.S. causing more than minimal effects shall require mitigation;

3. Other work or structures in waters of the United States will be evaluated on a case-by-case basis and may include mitigation to reduce the impacts to minimal levels;

4. Any required compensatory mitigation must meet the standards set forth in Title 33 CFR Parts 325 and 332, Compensatory Mitigation for Losses of Aquatic Resources, as published April 10, 2008 in the Federal Register, Vol. 73, No. 70, and any district guidance.

AGENCY NOTIFICATION:

Applicants are required to submit the IDEM RGP Notification Form when notification is required to the Corps or applying for authorization under the RGP. See "Appendix" for the district boundaries map.

Louisville District - If the proposed loss of jurisdictional waters is more than 0.1 acre or work involves more than 300 linear feet of stream channel or shoreline impact, then an application must be submitted. No application/notification is required if the work is under these thresholds, and no jurisdictional determination of any kind is required. Notification is required for work in navigable waters. Contact the Louisville District Regulatory Branch here:

U.S. Army Corps of Engineers
Louisville District
ATTN: CELRL-OPF-N
P.O. Box 59
Louisville, Kentucky 40201-0059
Phone: (502) 315-6733
Website: <http://www.lrl.usace.army.mil/Missions/Regulatory.aspx>

Detroit District - If there are proposed impacts to jurisdictional waters, then an application must be submitted. Contact the Detroit District Regulatory Branch here:

U.S. Army Corps of Engineers
Regulatory Michiana Branch
2422 Viridian Drive, Suite #200
South Bend, IN 46628-3561
Phone: (574) 232-1952
Website: <http://www.lrc.usace.army.mil/Missions/RegulatoryProgramandPermits.aspx>

Chicago District - If there are proposed impacts to jurisdictional waters, then an application must be submitted. Submit applications to: chicagorequests@usace.army.mil
Contact the Chicago District Regulatory Branch here:

U.S. Army Corps of Engineers
Chicago District Regulatory Branch
231 South LaSalle Street, Suite 1500
Chicago, Illinois 60604
Phone: (312) 846-5529
Website: <http://www.lrc.usace.army.mil/Missions/Regulatory.aspx>

Indiana Department of Environmental Management - If there are proposed impacts to any waters, then an application must be submitted.

The applicant must submit a Section 401 WQC Regional General Permit Notification Form (State Form 51937) for proposed waters impacts 0.10 acre or less, bank stabilization activities 300 linear feet or less on stream banks or lake shorelines, encapsulation activities 150 linear feet or less, or any activity that does not comply with the Section 401 Water Quality Certification which authorizes the use of the RGP in the state of Indiana.

The applicant must submit an Application for Authorization to Discharge Dredged or Fill material to Isolated Wetlands and/or Waters of the State (Form 51821) for proposed waters impacts greater than 0.10 acre, for bank stabilization impacts greater than 300 linear feet on stream banks and lake shorelines, and for encapsulation activities greater than 150 feet.

Note: Certain construction activities in waters of the U.S. within the State of Indiana under Section 404 of the Clean Water Act that are also regulated by the IDNR as public freshwater lakes will be covered under the Programmatic General Permit (PGP) dated December 15, 2012, and will not be covered under this RGP.

Contact the Indiana Department of Environmental Management here:

Indiana Department of Environmental Management
Section 401 WQC Program
100 North Senate Avenue
MC 65-42 WQS IGCN 1255
Indianapolis, Indiana 46204

INFORMATION REQUIREMENTS:

Any request for authorization under the RGP must provide the following information:

1. Name, address, and phone number of the applicant;
2. Location of the proposed work to include Section, Township, Range, latitude and longitude or UTM;
3. A detailed description of the project, its purpose, the dimensions including the size of the structure or the fill area, fill quantity and type of fill being used. Please include a discussion of any temporary construction activities such as access roads or cofferdams if included as part of the scope of work;
4. Drawings on 8 1/2 x 11-inch paper must include a location map, plan and cross-section drawings illustrating all the work to be done. The application drawings must provide a scale and/or the exact dimensions given;
5. Legible and reproducible construction drawings on 8 1/2 x 11-inch paper showing all aspects of the proposed activity, including existing and proposed contours, utilities, the location of wetlands/waters of the U.S. to be impacted and not impacted (marked appropriately for identification purposes), the Ordinary High Water Mark (OHWM) of all waters and the observed

outermost boundary of all wetlands. In addition, the drawings shall include a detailed plan and profile view of all structures AND/OR FILL to be installed in jurisdictional areas. The application drawings must provide a scale and/or exact dimensions given;

6. Submittal of photographs representing the existing site conditions;
7. Submittal of a mitigation and monitoring plan, if applicable.
8. For any project that impacts jurisdictional wetlands, a wetland delineation report is required and must conform to the Corps of Engineers' 1987 Wetland Delineation Manual, Technical Report Y-87-1, and the appropriate regional supplement for the proposed review area. The regional supplements in Indiana are the Midwest Regional Supplement to the Corps 1987 Wetland Delineation Manual, the Northcentral and Northeastern Regional Supplement to the Corps 1987 Wetland Delineation Manual, or the Eastern Mountains and Piedmont Regional Supplement to the Corps 1987 Wetland Delineation Manual.

IMPLEMENTATION PROCEDURES:

1. Applicants proposing to conduct work or discharge dredged and/or fill material into all waters of the U.S., including wetlands, must submit the application or notification form to the IDEM and the Corps as described in the "Agency Notification" section above.
2. The Districts will review all applications for project compliance with the terms, maximum limitations, and general conditions identified in the attachment. The conditions have been adapted from the Corps' present standard permit conditions and the nationwide permit program. Any individual project that fails to comply with all conditions cannot be authorized under the RGP procedures. The Districts will also review the proposal to determine the coordination requirements with the USFWS in accordance with the Endangered Species Act and with the SHPO in accordance with the National Historic Preservation Act (see general condition numbers 11 and 12). Applicants will be notified if additional information or project modification were necessary to comply with these requirements.
3. The applicant must immediately provide a copy of the Section 401 WQC to the appropriate Corps District. Typically, the District will respond in writing to all requests within 60 days of the District's receipt of a complete application. However, any work conducted under the RGP must comply with all the terms of the Section 401 WQC as well as the RGP general conditions and any other special conditions that may be necessary to reduce the impacts to the minimal level, and to satisfy other environmental concerns and regulatory requirements.
4. The Districts may, at their discretion, determine that the RGP is not appropriate and require an individual permit review of the proposal.
5. The Districts may, at their discretion, insert additional special conditions to the RGP to ensure that only activities that have minimal individual and cumulative impacts on the aquatic environment are authorized.

EXCLUDED ACTIVITIES:

1. Activities that are denied any required local, State or Federal authorization.
2. Activities that the Districts determine to have the potential to cause unacceptable adverse impacts on aquatic resources or other public interest factors. The Districts may, on a case-by-case basis, require an Individual Department of the Army (DA) permit. The Districts will notify the applicant that the project does not qualify for the RGP and instruct the applicant on the procedures to seek authorization under a standard Individual DA permit. The Districts may also require an Individual DA permit for any After-the-Fact application and/or any unauthorized activity regardless of whether or not the loss of waters meets the upper threshold limitation of 1.0 acre of impacts to wetlands or 1,500 linear feet (not to exceed 1.0 acre) of stream impacts threshold limitation.

ACTIVITY CATEGORIES AND CONDITIONS:

BANK STABILIZATION ACTIVITIES

This activity includes bank stabilization necessary for erosion prevention. The District Engineer may require mitigation for this activity on a case-by-case basis.

1. The proposed bank stabilization activity shall be justified based on a demonstrated need for erosion prevention. This category does not include maintenance activities.
2. The district engineer may waive the RGP linear foot limitation by making a written determination concluding that the discharge will result in minimal adverse effects on the aquatic environment. IDEM will be notified by the Corps that the RGP linear foot limitation has been waived.
3. The District Engineer will decide, on a case-by-case basis, if projects involving the use of vegetative and biotechnical practices will be subject to length restrictions. Biotechnical practices are defined as bank stabilization practices that benefit the aquatic environment by incorporating organic materials to produce functional structures, provide wildlife habitat, and provide areas for revegetation. Examples of biotechnical practices include, but are not limited to: a) adequately sized riprap or A-Jack structures keyed into the toe of the slope with native plantings on the banks above; b) vegetated geogrids; c) coconut fiber (coir) logs; d) live, woody vegetative cuttings, fascines or stumps; e) brush layering; and f) soil lifts.
4. Riprap shall not be placed at a steeper slope than 2:1 (2 horizontal to 1 vertical) for dumped riprap, and 1.5:1 for hand placed riprap.
5. No more than two (2) cubic yards per running foot of material shall be used as backfill behind structures.
6. Bank stabilization shall be constructed using clean fill materials. The following materials may be used: rock, quarry stone, fieldstone, clay, granular fill, broken concrete, steel or vinyl sheet piling, cellular blocks, fabric formed concrete, concrete filled fabric mats, gabion baskets, rock and wire mattresses, sand/cement filled bags, geotechnical fabric materials, non-invasive vegetation, and treated timber. If broken concrete is used, it must be free from asphalt and oils, in addition all

protruding material such as reinforced rods shall be cut flush with the surface of the concrete and removed from the construction area.

7. All material utilized shall be properly sized or anchored to resist anticipated forces of wave action.

TRANSPORTATION PROJECTS

This activity includes the construction, expansion, modification or improvement of linear transportation projects. Temporary structures, fills, and work necessary to construct linear transportation projects are also included.

1. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

RESIDENTIAL, COMMERCIAL, INSTITUTIONAL, INDUSTRIAL AND RECREATIONAL DEVELOPMENTS

Activities include the construction or expansion of a single residence, a multiple unit residential development, a residential subdivision, commercial and institutional buildings, and recreational facilities. Attendant features may include but are not limited to roads, parking lots, garages, yards, infrastructure and utility lines, storm water management facilities, septic fields, and recreation facilities such as playgrounds, playing fields, golf courses, hiking trails, bike paths, horse paths, nature centers and campgrounds. The maximum impact limitations will be applied on a cumulative basis for activities that are part of a larger common plan of development or sale.

BOAT RAMPS

Activities required for the construction of boat ramps.

1. The boat ramp does not exceed 60 feet in width, unless the district engineer waives this criterion by making a written determination concluding the discharge will result in minimal adverse effects.

MINOR DISCHARGES AND EXCAVATION ACTIVITIES

Activities include minor discharges of dredged or fill material into all waters of the U.S. and reshaping of existing drainage ditches. The District Engineer may require mitigation for this activity on a case-by-case basis.

1. Projects involving the grading or reshaping of existing drainage ditches may not increase the slope of the ditch banks, the drainage capacity, nor can they expand the area drained by the ditch (as originally constructed).

2. All dredged/excavated materials will be disposed of in upland location(s) landward of the

OHWL with no placement in, or return to, any waterway or wetland. Any excess material that cannot be accommodated on the permittee's upland property shall be placed in an upland location without any return to a waterway or wetland.

AGRICULTURAL ACTIVITIES

Agricultural activities including the construction of building pads for farm buildings; installation, placement or construction of drainage tiles, ditches or levees; the relocation of existing serviceable drainage ditches constructed in waters of the U.S.; and similar activities. The District Engineer may require mitigation on a case-by-case basis, and may waive the RGP linear foot limitation by making a written determination concluding that the discharge will result in minimal adverse effects on the aquatic environment. IDEM will be notified by the Corps that the RGP linear foot limitation has been waived. This RGP does not affect those agricultural activities that are exempt in accordance with 33 CFR Part 323.4, or are exempt under CWA Section 404(f)(1)(A).

MINING ACTIVITIES

Mining activities are authorized under this category, except for coal mining activities. This RGP does not affect those mining activities that are exempt in accordance with 33 CFR Part 323.4.

1. If reclamation is required by other statutes, a copy of the reclamation plan must be submitted with the permit application.

DEFINITIONS

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR Part 60).

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for the RGP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Reestablishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation (pertaining to compensatory mitigation): The manipulation of the physical,

chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: reestablishment and rehabilitation.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Waterbody: For purposes of the RGP, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent - meaning bordering, contiguous, or neighboring - to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)–(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

GENERAL CONDITIONS:

1. *Navigation:* (a) No activity authorized by the RGP may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army, or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. *Aquatic Life:* No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and

constructed to maintain low flows to sustain the movement of those aquatic species.

3. *Spawning Areas*: Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. *Migratory Bird Breeding Areas*: Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. *Shellfish Beds*: No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to an authorized shellfish harvesting activity, or is a shellfish seeding or habitat restoration activity.

6. *Suitable Materials*: No activity, including structures and work in waters of the U.S. or discharges of dredged or fill material, may use unsuitable material, including auto bodies, tires, garbage or debris, scrap lumber, metal refuse, roofing materials, asphalt or other bituminous material, broken concrete containing asphalt, or any material which would cause water pollution as defined by the Indiana Department of Environmental Management.

7. *Water Supply Intakes*: The permittee shall not perform any work under the RGP where the discharge of dredged and/or fill material will occur in the proximity of a public water supply intake except where the activity is for the repair or improvement of the public water supply intake structures or adjacent bank stabilization.

8. *Safety of Impoundment Structures*: To ensure that all impoundment structures are safely designed, the District Engineer may require non-federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons, i.e., a licensed engineer. The District Engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

9. *Adverse Effects from Impoundments*: If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

10. *Management of Water Flows*: To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

11. *Fills Within 100-Year Floodplains*: The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

12. *Equipment*: All construction equipment shall be refueled and maintained on an upland site

away from existing streams, drainage ways and wetland areas. Heavy equipment working in wetlands must be placed on mats, or other measures taken to minimize soil disturbance.

13. *Soil Erosion and Sedimentation Controls:* Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

14. *Removal of Temporary Fills:* Temporary fills must be removed in their entirety and the affected areas returned to pre-construction conditions (i.e., elevation, contours, re-establishment of vegetation, etc.).

15. *Proper Maintenance:* Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable general conditions, as well as any activity-specific conditions added by the District Engineer to an RGP authorization.

16. *Single and Complete Project:* The activity must be a single and complete project. The same RGP cannot be used more than once for the same single and complete project.

17. *Endangered Species:* (a) No activity is authorized under the RGP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under the RGP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the District Engineer with the appropriate documentation to demonstrate compliance with those requirements. The District Engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the RGP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, and shall not begin work on the activity until notified by the District Engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work. The District Engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-federal applicant of the Corps determination within 45-days of receipt of a complete pre-construction notification. In cases where the non-federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the USFWS the District Engineer may add species-specific regional endangered species conditions to the RGP.

(e) Authorization of an activity under the RGP does not authorize the "take" of a threatened

or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS Service, the ESA prohibits any person subject to the jurisdiction of the United States to take listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS or their webpages on the Internet.

18. *Migratory Birds and Bald and Golden Eagles*: The permittee is responsible for obtaining any "take" permits required under the USFWS' regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.

19. *Migratory Bird Breeding Areas*: Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

20. *Historic Properties*: The permittee shall not perform any activity under the RGP which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The permittee must notify the District Engineer if the activity authorized by the RGP may affect any historic properties listed, determined to be eligible or which the permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin construction until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the IDNR, Division of Historic Preservation and Archaeology.

If the permittee discovers any previously unknown historic or archaeological remains while accomplishing the activity authorized by the RGP, work must be immediately stopped and the Corps immediately notified. The District will initiate the Federal, tribal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

21. *Discovery of Previously Unknown Remains and Artifacts*: If you discover any previously unknown historic, cultural, or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the District Engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The District Engineer will initiate the federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. *Mitigation*: The permittee shall provide a mitigation/monitoring plan for any activity where the adverse impact (i.e., loss of waters) on special aquatic sites (including wetlands) exceeds 0.10 acre (4,356 sq. ft.) or is determined to be more than minimal impact. The permittee shall also provide a mitigation/monitoring plan for any channelization, encapsulation, or relocation of greater than 300

linear feet of stream, unless there is no net loss of function, in which case the District Engineer will determine, on a case-by-case basis, if mitigation is required. All mitigation plans will include a minimum 50-foot wide buffer between the edge of the mitigation project site and the waters and/or wetlands to be affected unless a shorter distance has been specifically approved under the RGP. If a shorter distance is approved, it is incumbent on the applicant to demonstrate that no practicable alternatives are available in meeting the required buffer widths. If mitigation is required, the permittee shall develop the mitigation site concurrently with permitted impacts. The mitigation proposal must be in compliance with Title 33 CFR Parts 325 and 332, Compensatory Mitigation for Losses of Aquatic Resources, as published April 10, 2008 in the Federal Register, Vol. 73, No. 70.

23. *Water Quality*: If an individual 401 WQC is required, the permittee must provide a copy of it to the Corps. The permittee must comply with any case specific special conditions added by the Corps or by the Section 401 WQC. The conditions imposed in the Section 401 WQC are also conditions of this RGP.

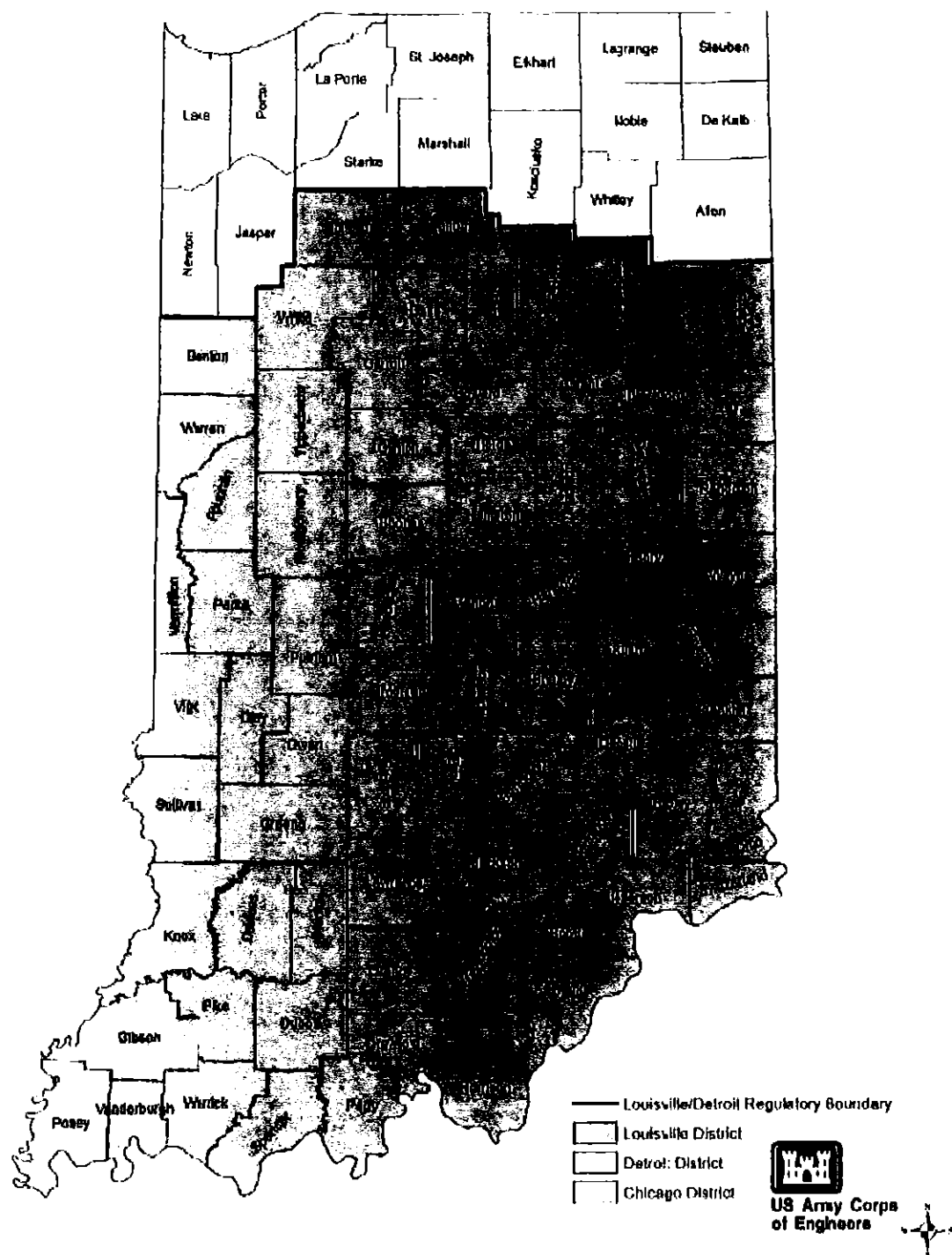
24. *Minimization/Avoidance*: Discharges of dredged or fill material into waters of the U.S. must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site). In determining the minimal impact threshold, the Districts will consider the direct and secondary impacts of the fill or work and any mitigation measures.

25. *Access*: Representatives from the Corps of Engineers and/or IDEM may inspect any authorized activity or mitigation site at any time deemed necessary to ensure compliance with the terms and conditions of the RGP, Section 401 WQC, and applicable laws.

26. *Construction Period*: If construction of the project has commenced, or is under contract to commence prior to the expiration date, the applicant must complete the project within one (1) year of the RGP expiration date. If you find you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 3 months prior to the expiration date.

27. *Reporting*: The permittee, after completion of work under the RGP, shall submit a signed certification letter regarding the completed work and required mitigation, if applicable. The certification letter will include a statement that the work was done in accordance with the RGP authorization including compliance with all general and special conditions and completion of mitigation work.

This map represents the Louisville, Detroit and Chicago District boundaries. Please contact the appropriate District using the “Agency Notification Procedures” outlined above for your area.





INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

February 26, 2015

VIA CERTIFIED MAIL 91 7190 0005 2710 0038 4942

RECEIVED

MAR 02 2015

**HAMILTON CO.
HIGHWAY DEPT.**

Mr. Faraz Khan
Hamilton County Highway Department
1700 South 10th Street
Noblesville, IN 46060

Dear Mr. Faraz:

Re: Section 401 Water Quality Certification
Project: Taylor Creek at 256th and Cal Carson
IDEM No.: 2015-015-29-JBT-A
County: Hamilton

The Office of Water Quality has reviewed your application for Section 401 Water Quality Certification dated and received January 20, 2015. According to the application, you propose to replace the small structures carrying 256th Street and Cal Carson Road over Taylor Creek. As part of the project you propose to install bridge piers which will impact 109 linear feet of stream; place riprap along 46 linear feet of Taylor Creek as scour protection for the bridges; and place 176 linear feet of riprap along other sections of Taylor Creek as bank armourment. In addition, you propose to re-grade 1154 linear feet of stream to form a three-stage ditch. The project is located in parts of Sections 20, 21, and 29, Township 20 North, Range 4 East in Hamilton County.

Based on available information, it is the judgment of this office that the proposed project will comply with the applicable provisions of 327 IAC 2 and Sections 301, 302, 303, 306, and 307 of the Clean Water Act if you comply with the conditions set forth below. Therefore, subject to the following conditions, the Indiana Department of Environmental Management (IDEM) hereby grants Section 401 Water Quality Certification for the project described in your application received January 20, 2015. Any changes in project design or scope not detailed in the application described above or modified by the conditions below are not authorized by this certification.

CONDITIONS OF THE SECTION 401 WATER QUALITY CERTIFICATION:

You shall:

- 1) Allow the commissioner or an authorized representative of the commissioner (including an authorized contractor), upon the presentation of credentials:



- a) to enter your property, including impact and mitigation site(s);
 - b) to have access to and copy at reasonable times any records that must be kept under the conditions of this certification;
 - c) to inspect, at reasonable times, any monitoring or operational equipment or method; collection, treatment, pollution management or discharge facility or device; practices required by this certification; and any mitigation wetland site;
 - d) to sample or monitor any discharge of pollutants or any mitigation site.
- 2) Complete all approved discharges no later than two (2) years of the date of issuance of this Section 401 Water Quality Certification. You may request a one (1) year extension to the Section 401 Water Quality Certification by submitting a written request ninety (90) days prior to the deadline stated above. The written request shall contain an account of which discharges and mitigation have been completed and list the reasons an extension is requested.
 - 3) Deposit any dredged material in a contained upland disposal area to prevent sediment runoff to any waterbody.
 - 4) Install erosion control methods prior to any soil disturbance to prevent soil from leaving the construction site. Appropriate erosion control methods include, but are not limited to, straw bale barriers, silt fencing, erosion control blankets, phased construction sequencing, and earthen berms. Monitor and maintain erosion control structures and devices regularly, especially after rain events, until all soils disturbed by construction activities have been permanently stabilized.
 - 5) Allow no silt basins to be constructed within Taylor Creek.
 - 6) Seed, mulch, and use other appropriate methods as needed to stabilize the new stream channel at the time of excavation and reshaping.
 - 7) Allow no construction equipment, temporary run-arounds, coffer dams, temporary causeways, temporary crossings, or other such structures to enter or be constructed within any waterbody, unless specifically stated, depicted, or detailed in the aforementioned correspondence and project plans. A modification of this Section 401 Water Quality Certification is required from this office if any of the aforementioned items are needed for project construction.
 - 8) Remove any temporary causeway or other approved temporary structures used to facilitate construction or access upon completion of construction activities.

This certification does not relieve you of the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from IDEM or any other agency or person. You may wish to contact the Indiana Department of Natural Resources at 317-232-4160 (toll free at 877-928-3755) concerning the

possible requirement of natural freshwater lake or floodway permits. In addition, you may wish to contact IDEM's Storm Water Permits Section at 317-233-1864 concerning the possible need for a 327 IAC 15-5 (Rule 5) permit if you plan to disturb greater than one (1) acre of soil during construction.

This certification does not:

- (1) authorize impacts or activities outside the scope of this certification;
- (2) authorize any injury to persons or private property or invasion of other private rights, or any infringement of federal, state or local laws or regulations;
- (3) convey any property rights of any sort, or any exclusive privileges;
- (4) preempt any duty to obtain federal, state or local permits or authorizations required by law for the execution of the project or related activities; or
- (5) authorize changes in the plan design detailed in the application.

Failure to comply with the terms and conditions of this Section 401 Water Quality Certification may result in enforcement action against you. If an enforcement action is pursued, you could be assessed up to \$25,000 per day in civil penalties. You may also be subject to criminal liability if it is determined that the Section 401 Water Quality Certification was violated willfully or negligently.

This certification is effective eighteen (18) days from the mailing of this notice unless a petition for review and a petition for stay of effectiveness are filed within this 18-day period. If a petition for review and a petition for stay of effectiveness are filed within this period, any part of the certification within the scope of the petition for stay is stayed for fifteen (15) days, unless or until an Environmental Law Judge further stays the certification in whole or in part.

This decision may be appealed in accordance with IC 4-21.5, the Administrative Orders and Procedures Act. The steps that must be followed to qualify for review are:

- 1) You must petition for review in writing that states facts demonstrating that you are either the person to whom this decision is directed, a person who is aggrieved or adversely affected by the decision, or a person entitled to review under any law.
- 2) You must file the petition for review with the Office of Environmental Adjudication (OEA) at the following address:

Office of Environmental Adjudication
100 North Senate Avenue
IGCN Room N501
Indianapolis, IN 46204

- 3) You must file the petition within eighteen (18) days of the mailing date of this decision. If the eighteenth day falls on a Saturday, Sunday, legal holiday, or other day that the OEA offices are closed during regular business hours, you may file the petition the next day that the OEA offices are open during regular business hours. The petition is deemed filed on the earliest of the following dates: the date it is personally delivered to OEA; the date that the envelope containing the petition is postmarked if it is mailed by United States mail; or, the date it is shown to have been deposited with a private carrier on the private carrier's receipt, if sent by private carrier.

Identifying the certification, decision, or other order for which you seek review by number, name of the applicant, location, or date of this notice will expedite review of the petition.

Note that if a petition for review is granted pursuant to IC 4-21.5-3-7, the petitioner will, and any other person may, obtain notice of any prehearing conferences, preliminary hearings, hearings, stays, and any orders disposing of the proceedings by requesting copies of such notices from OEA.

If you have procedural questions regarding filing a petition for review you may contact the Office of Environmental Adjudication at 317-232-8591.

If you have any questions about this certification, please contact Mr. James Turner, Project Manager, of my staff by phone at 317-234-6352, or by e-mail at JTurner2@IDEM.IN.gov or you may contact the Office of Water Quality through the IDEM Environmental Helpline (1-800-451-6027).

Sincerely,



Martha Clark Mettler
Deputy Assistant Commissioner
Office of Water Quality

cc: Jim Thomas, USACE-Louisville District
Marissa Reed, USFWS
Brian Boszor, IDNR
John South, Hamilton County Soil and Water Conservation District
Jon LaTurner, DLZ Indiana, LLC



**This notice of authorization must be conspicuously
displayed at the site of work.**

United States Army Corps of Engineers

MAY 14, 2015

A PERMIT TO: REPLACE TWO BRIDGES REQUIRING 331 FEET OF IMPACTS TO TAYLOR CREEK. ALSO, RE-GRADING 1,154 LINEAR FEET OF STREAM TO FORM A THREE-STAGE DITCH.

**AT: 256TH STREET AND CAL CARSON ROAD OVER TAYLOR CREEK, IN ARCADIA, HAMILTON COUNTY, INDIANA
(LATITUDE: 40.162198°; LONGITUDE: -86.090949°).**

**has been issued to: HAMILTON COUNTY BOARD OF COMMISSIONERS
FARAZ J. KHAN, HAMILTON COUNTY ENGINEER**

**ADDRESS OF PERMITTEE: 1700 SOUTH 10TH STREET
NOBLESVILLE, INDIANA 46060**

Permit No. LRL-2015-69-j11t

**CHRISTOPHER G. BECK
COLONEL, CORPS OF ENGINEERS
COMMANDING**

BY:

JIM THOMAS

**PROJECT MANAGER, NORTH SECTION
REGULATORY BRANCH**

US ARMY CORPS OF ENGINEERS
LOUISVILLE DISTRICT
REGULATORY BRANCH
P. O. BOX 59
LOUISVILLE, KY 40201-0059
(502) 315-6733

COMPLETION REPORT

COE ID No. LRL-2015-69-jlt Date.

Permittee Name:
Corporate Name:
Address:

City State Zip Code
Telephone No.

Agent Name:
Corporate Name:
Address:

City State Zip Code
Telephone No.

Location Description:

County State

Linear Feet of Stream Impact: Acres of Wetland Impact:

Has all the work on this project been completed according to plans, specifications, and conditions of the permit? Yes No

If not, explain:

Permittee Signature



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

June 3, 2015

65-42 WQS/RJB
Faraz Khan
Hamilton County Board of Commissioners
1700 S 10th St
Noblesville, IN 46060

RECEIVED

JUN 05 2015

HAMILTON CO. HIGHWAY DEPT.

Dear Mr Khan:

Re: **Notice of Sufficiency**

INR10J884

Replacement Plan for SS #32028 and SS
#32059

Hamilton County

The Notice of Intent (NOI) letter submitted for the project referenced above has been reviewed by the Indiana Department of Environmental Management (IDEM) to determine compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharge associated with construction activity (327 IAC 15-5). The items contained in the NOI are sufficient. This letter is being issued for 327 IAC 15-5 and does not constitute approval to conduct activities that are related to other local, state, or federal permits.

An NPDES general permit identification number has been assigned to this project. This number and the above referenced project name should be included on any correspondence or amended NOI information submitted to IDEM pertaining to this project. The general permit number assigned to this project is: **INR10J884**.

It is important that all activities associated with your site are in compliance with the requirements of 327 IAC 15-5 (Rule 5) and any local storm water permits. In accordance with 327 IAC 15-5-10, you are required to implement your construction plan, implement and maintain all storm water quality measures, and monitor the effectiveness of the storm water quality measures until the project is complete.

All Notices of Intent submitted for Rule 5 NPDES general permit coverage are automatically limited to a maximum term length of 5 years (327 IAC 15-5-12). The General Permit issued for the project referenced above will expire on **4/9/2020**. If this project requires coverage beyond this date the applicant must reapply for a new permit 90 days prior to the expiration date.

Upon completion of the project, you are required to terminate the permit. Information for termination can be found in 327 IAC 15-5-8. To expedite this process, it



is recommended that you first receive verification from the plan review entity prior to submittal of the Notice of Termination.

Any questions regarding this letter or the enclosed materials should be directed to the Storm Water Permits Coordinator at 317-233-1864 or 800-451-6027, ext. 3-1864.

Questions regarding the development or implementation of the Construction Plan/Storm Water Pollution Prevention Plan should be directed to the local plan review authority (Soil and Water Conservation District (SWCD) or the local Municipal Separate Storm Sewer entity). If you are unable to reach the SWCD or have other questions please direct those inquiries to the IDEM Storm Water Permits Coordinator at 317-233-1864 or 800-451-6027 ext.3-1864. For more information on the storm water program and forms please visit: www.idem.IN.gov/4896.htm.

Sincerely,

A handwritten signature in cursive script that reads "Randy J. Braun".

Randy J. Braun, CPESC, CMS4S
Section Chief
Storm Water and Wetlands Section
Office of Water Quality

**RULE 5 - NOTICE OF INTENT (NOI)**

State Form 47487 (R5 / 10-05)
Indiana Department of Environmental Management
Office of Water Quality
Approved by State Board of Accounts, 2005

Type of Submittal (Check Appropriate Box):

☒ Initial ☐ Amendment ☐ Renewal

Permit Number:

(Note: The initial submittal does not require a permit number; the Department will assign a number. A permit number is required when filing an amendment, applying for renewal, or correspondence related to this permit).

Note: Submission of this Notice of Intent letter constitutes notice that the project site owner is applying for coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit Rule for Storm Water Discharges Associated with Construction Activity. Permitted project site owners are required to comply with all terms and conditions of the General Permit Rule 327 IAC 15-5 (Rule 5).

Project Name and Location			
Project Name: Replacement Plan for SS #32028 and SS #32059		County: Hamilton	
Brief Description of Project Location: SS #32028 is approximately 875 feet west of the intersection of 256th St and Cal Carson Rd over Taylor Ditch. SS #32059 is approximately 460 feet north of the intersection of 256th St and Cal Carson Rd over Taylor Ditch.			
Project Location: Describe location in Latitude and Longitude (Degrees, Minutes, and Seconds or Decimal representation) <u>and</u> by legal description (Section, Township, and Range, Civil Township)			
Latitude: 40° 09' 41" N, 40° 09' 46" N		Longitude: 86° 05' 30" W, 86° 05' 19" W	
Quarter: Does <input type="checkbox"/> all or <input type="checkbox"/> part of this project lie within the jurisdictional boundaries of a Municipal Separate Storm Sewer System (MS4) as defined in 327 IAC 15-13? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, name the MS4(s):	Section: 20, 21, and 29 Township: 20N Range: 4E Civil Township: Jackson		
Project Site Owner and Project Contact Information			
Company Name (If Applicable): Hamilton County Board of Commissioners			
Project Site Owner's Name: (An Individual) Faraz Khan		Title/Position: Project Manager	
Address: 1700 South 10th Street			
City: Noblesville		State: IN	ZIP Code: 46060
Phone: (317) 773-7770	FAX: (317) 776-9814	E-Mail Address: (If Available) Faraz.Khan@hamiltoncounty.in.gov	
Ownership Status (check one): Governmental Agency: <input type="checkbox"/> Federal <input type="checkbox"/> State <input checked="" type="checkbox"/> Local Non-Governmental: <input type="checkbox"/> Public <input type="checkbox"/> Private <input type="checkbox"/> Other: (Explain)			
Contact Person: Faisal Saleem, PE		Company Name: (If Applicable) DLZ Indiana, LLC	
Affiliation to Project Site Owner: Consultant			
Address: (if different from above) 157 East Maryland Street			
City: Indianapolis		State: IN	ZIP Code: 46204
Phone: (317) 633-4120	FAX:	E-Mail Address: (If Available) fsaleem@dlz.com	
Project Information			
Project Description: <input type="checkbox"/> Residential-Single Family <input type="checkbox"/> Residential-Multi-Family <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Other: (Explain) 2 - Small Structure Replacements			
Name of Receiving Water: Taylor Ditch/Creek (Note: If applicable, name of municipal operator of storm sewer and the ultimate receiving water. If a retention pond is present on the property, the name of the nearest possible receiving water receiving discharge must be provided).			
Project Acreage Total Acreage: 4.5 Proposed Land Disturbance: (in acres) 4.5 Total Impervious Surface Area: (in square feet, estimated for completed project) 51,650			
Project Duration Estimated Start Date: June 2015 Estimated End Date for all Land Disturbing Activity: December 2015			

(Continued on Reverse Side)

Construction Plan Certification

By signing this Notice of Intent letter, I certify the following:

- A. The storm water quality measures included in the Construction Plan comply with the requirements of 327 IAC 15-5-6.5, 327 IAC 15-5-7, and 327 IAC 15-5-7.5;
- B. the storm water pollution prevention plan complies with all applicable federal, state, and local storm water requirements;
- C. the measures required under 327 IAC 15-5-7 and 327 IAC 15-5-7.5 will be implemented in accordance with the storm water pollution prevention plan;
- D. if the projected land disturbance is One (1) acre or more, the applicable Soil and Water Conservation District or other entity designated by the Department, has been sent a copy of the Construction Plan for review;
- E. storm water quality measures beyond those specified in the storm water pollution prevention plan will be implemented during the life of the permit if necessary to comply with 327 IAC 15-5-7; and
- F. implementation of storm water quality measures will be inspected by trained individuals.

In addition to this form, I have enclosed the following required information:

- ☒ Verification by the reviewing agency of acceptance of the Construction Plan.
- ☒ Proof of publication in a newspaper of general circulation in the affected area that notified the public that a construction activity is to commence, including all required elements contained in 327 IAC 15-5-5 (9). The Proof of Publication **Must** include company name and address, project name, address/location of the project, and the receiving stream to which storm water will be discharged. Following is a sample Proof of Publication:

"XERT Development Inc. (10 Willow Lane, Indianapolis, Indiana 46206) is submitting a Notice of Intent to the Indiana Department of Environmental Management of our intent to comply with the requirements of 327 IAC 15-5 to discharge storm water from construction activities associated with Water Garden Estates located at 24 Washout Lane, Indianapolis, Indiana 46206. Runoff from the project site will discharge to the White River. Questions or comments regarding this project should be directed to Walter Water of XERT Development Inc."

- ☒ \$100 check or money order payable to the Indiana Department of Environmental Management. A permit fee is required for all NOI submittals (initial and renewal). A fee is not required for amendments.

Project Site Owner Responsibility Statement

By signing this Notice of Intent letter, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information or violating the provisions of 327 IAC 15-5, including the possibility of fine and imprisonment for knowing violations.

Printed Name of Project Owner: Faraz Khan

Signature of Project Owner:  Date: March 19, 2015

This Notice of Intent must be signed by an individual meeting the signatory requirements in 327 IAC 15-4-3(g).
All NOI submittals must include an original signature (FAX and photo copies are not acceptable).

Note: Within 48 hours of the initiation of construction activity, the project site owner must notify the appropriate plan review agency and IDEM, Office of Water Quality of the actual project start date if it varies from the date provided above.

Note: A permit issued under 327 IAC 15-5 is granted by the commissioner for a period of five (5) years from the date coverage commences. Once the five (5) year permit term duration is reached, a general permit issued under this rule will be considered expired, and as necessary for construction activity continuation, a new Notice of Intent letter (Renewal) is required to be submitted ninety (90) days prior to the termination of coverage. The submittal must include the NOI Letter, Proof of Publication, Fee, and verification that the plan for the project was approved (original verification of plan approval is acceptable provided the scope of the project has not changed from the original submittal).

**Mail this form to: Indiana Department of Environmental Management
Cashiers Office - Mail Code 50-10C
100 North Senate Avenue
Indianapolis, IN 46204-2251**

327 IAC 15-5-6 (a) also requires a copy of the completed Notice of Intent letter be submitted to the local Soil and Water Conservation District or other entity designated by the Department, where the land disturbing activity is to occur.

Questions regarding the development or implementation of the Construction Plan/Storm Water Pollution Prevention Plan should be directed to the local county Soil and Water Conservation District (SWCD). If you are unable to reach the SWCD or have other questions please direct those inquiries to the IDEM Rule 5 Coordinator at 317/233-1864 or 800/451-6027 ext.3-1864.

For information and forms visit: <http://www.in.gov/idem/permits/water/wastewater/wetwthr/storm/rule5.html>

APPENDIX F

Duke Energy's Specifications for High Voltage Transmission line



Duke Energy Corporation
2727 Central Ave
Columbus, IN 47201
812-375-2021

9/22/2014

Faisal Saleem, PE
DLZ
157 E. Maryland St.
Indianapolis, IN 46204

Reference: Hamilton County Bridge Replacement, SS# 32028, Bridge #303, E 256th st/Taylor Ditch
Dear Mr. Saleem,

I have reviewed your request to use our transmission line easement for the purpose of the above referenced project. Duke Energy does not object to your use of our easement based upon the drawing you have sent me for review.

I have reviewed and approved drawing sheets 1-47, with a date of 9/03/14.

I have not reviewed any other drawings or approved any other proposed development work by you in this easement.

The nearest Duke Energy structure to your project is numbered 982-3076, carrying our 23008 line, carrying 230,000 volts of electricity.

Please see the "Duke Energy Transmission Right of Way Guidelines and Restrictions" for any further guidance.

Duke Energy offers this additional guidance to help you accomplish your work in a safe manner and to protect the reliability of our transmission lines:

- Contractors operating grading equipment should be instructed not to operate within 25ft of the poles or towers and the slope shall not exceed 4:1 on the right of way. No spoil dirt is to be placed within the Duke R/W limits.
- Any damage to the line and or structures and claims due to the damage is the responsibility of the contractor/owner.
- Duke Energy encourages you to post signs reminding all drivers to make sure dump beds are completely lowered when crossing transmission R/W.
- All disturbed land in the easement shall be returned to its prior condition after your work is finished in the easement.
- The contractor working in the easement is responsible for ensuring all workers working in the easement follow all OSHA and NEC requirements

Duke Energy also offers the following comments to ensure that other potential conflicts are not created during construction.

- If there are design changes to any drawings that involve the right of way, Duke Energy would like the opportunity to review these changes for compliance.
- Proper clearances must be maintained. If any construction work by Duke Energy is required to maintain proper clearances, the cost will be the responsibility of the developer.

In not objecting to the use of the easement for the above stated purposes, Duke Energy is not relinquishing the right to control and maintain the right-of-way as specified in the agreements. Any damage to the poles or lines and claims caused by the damage is the responsibility of the contractor/developer. It is the responsibility of the contractors to ensure all persons working near the transmission lines are made aware of the safety hazards associated with this line.

Please see the "Duke Energy Transmission Right of Way Guidelines and Restrictions" for any further guidance and your future plans.

Thank you for the opportunity to work with you on this project. If you have any questions, please feel free to contact me at 812-375-2021.

Sincerely

Gary S. McNamee

Gary S. McNamee

Duke Energy

Asset Protection Specialist

Gary.mcnamee@duke-energy.com



ELECTRIC TRANSMISSION RIGHTS-OF-WAY GUIDELINES/RESTRICTIONS VALID FOR OHIO, INDIANA, AND KENTUCKY

This list of rights-of-way restrictions has been developed to answer the most frequently asked questions about property owner use of Duke Energy's electric transmission rights of way. This list does not cover all restrictions or all possible situations. You should contact the Asset Protection Right-of-Way Specialist if you have additional concerns about the rights of way. This list of restrictions is subject to change at any time and without notice. Duke Energy reserves all rights conveyed to it by the right-of-way agreement applicable to the subject property. All activity within the rights of way shall be reviewed by an Asset Protection Right-of-Way Specialist to obtain prior written approval. Engineering plans may be required. Compliance with the Duke Energy Right-of-Way Guidelines/Restrictions or approval of any plans by Duke Energy does not mean that the requirements of any local, county, state, or federal government or other applicable agency with governing authority have been satisfied.

1. Structures, buildings, manufactured/mobile homes, satellite systems, swimming pools (and any associated equipment and decking), graves, billboards, dumpsters, signs, wells, deer stands, retaining walls, septic systems or tanks (whether above or below ground), debris of any type, flammable material, building material, wrecked or disabled vehicles and all other objects (whether above or below ground) which, in Duke Energy's opinion interferes with the electric transmission right of way, are not allowed within the right-of-way limits. Transformers, telephone/cable pedestals (and associated equipment), and fire hydrants are not allowed. Manholes, water valves, water meters, backflow preventers and irrigation heads are not permitted. Attachments to Duke Energy structures are prohibited.
- b. Fences and gates shall not exceed 10 feet in height and shall be installed greater than 25 feet from poles, towers and guy anchors. Fences shall not parallel the centerline within the rights of way but may cross from one side to the other at any angle not less than 30 degrees with the centerline. If a fence crosses the rights of way, a gate (16 foot wide at each crossing) shall be installed by the property owner, per Duke Energy's specifications. The property owner is required to install a Duke lock on the gate to insure access. Duke will supply a lock.
3. Grading (cuts or fill) shall be no closer than 25 feet from poles, towers, guys and anchors (except for parking areas, see paragraph 7) and the slope shall not exceed 4:1. Grading or filling near Duke Energy facilities, which will prevent free equipment access, or creates ground to conductor clearance violations, will not be permitted. Storage or stockpiling of dirt or any construction material is prohibited. Sedimentation control, including re-vegetation, is required per state regulations.
4. Streets, roads, driveways, sewer/water lines, other utility lines or any underground facilities shall not parallel the centerline within the rights of way, but may cross, from one side to the other, at any angle not less than 30 degrees with the centerline. No portion of such facility or corresponding easement shall be located within 25 feet of Duke Energy's facilities. Roundabouts, cul-de-sacs, intersections (such as roads, driveways and alleyways) are not permitted.
5. Any drainage feature that allows water to pond, causes erosion, directs storm water toward the rights of way, or limits access to or around Duke Energy facilities is prohibited.
6. Contact Duke Energy prior to the construction of lakes, ponds, retention, or detention facilities, etc.
7. Parking may be permitted within the rights of way, provided that:
 - a. Prior to grading, concrete barriers shall be installed at a minimum of 9 feet from the Duke Energy facilities. During construction, grading shall be no closer than 10 feet to any Duke Energy facility.
 - b. After grading/paving activity is complete, Duke Energy approved barrier, sufficient to withstand a 15 mph vehicular impact, shall be erected 9 ft. from any Duke Energy facility.
 - c. Any access areas, entrances, or exits shall cross (from one side to the other) the rights of way at any angle not less than 30 degrees with the centerline, and shall not pass within 25 feet of any structure. Parking lot entrances/exits cannot create an intersection within the right of way.
 - d. Lighting within the rights-of-way limits must be approved by Duke Energy before installing. Due to engineering design standards, lighting is not allowed in the "Wire Zone". Where lighting is approved (Border Zone), the total height may not exceed 15 ft. Contact your Asset Protection Specialist as the "Wire Zone" varies for the different voltage lines.
8. Duke Energy will not object to certain vegetation plantings as long as:
 - a. It does not interfere with the access to or the safe, reliable operation and maintenance of Duke Facilities.
 - b. With prior written approval, Duke Energy does not object to low growing shrubs and grasses (not to exceed 7 feet at maturity) within the "Wire Zone". Tree species are not allowed within the "Wire Zone". Trees that are approved in the "Border Zone" may not exceed, at maturity, 15 feet in height. Contact the Asset Protection Specialist for "Wire Zone"/ "Border Zone" definitions.
 - c. For compliant mature height species, refer to <http://plantfacts.osu.edu/plantlist/index.html> for reference.
 - d. Engineering drawings must indicate the outer most conductors.
 - e. Vegetation that is not in compliance is subject to removal without notice.
 - f. Duke Energy may exercise the rights to cut "danger trees" outside the rights of way limits as required to properly maintain and operate the transmission line.

We hope this is useful information. If you have additional questions or plan any activity not mentioned above, please contact the Asset Protection Specialist for your area.

Duke Energy Asset Protection Specialist: _____ Telephone Number: _____
Form 02191 (REV. 04/01/2014)



Your safety is our priority

We have a goal at Duke Energy – to eliminate injury and death from needless power line contacts. We want to provide you with the information you need to stay safe at work.

Important OSHA minimum approach regulation

The following table is from OSHA 1910.333 and applies to nonqualified persons working in proximity to energized power lines. The minimum approach distance is to be maintained for nonqualified workers. When using equipment classified as a crane or derrick, OSHA 29 CFR 1926.1407-1411 must be followed.

OSHA - 1910.333 Applies to NonQualified Persons Minimum Approach Distance	
Up to 50 kV	10 Feet
50 kV up to 200 kV	15 Feet
200 kV up to 350 kV	20 Feet
350 to 500 kV	25 Feet
500 kV to 750 kV	35 Feet

Important OSHA crane regulation

Cranes and derricks near transmission power lines – OSHA 29 CFR 1926.1407-1411

This regulation applies to power-operated equipment used in construction that can hoist, lower and horizontally move a suspended load.

If any part of equipment, load line or load could get closer than 20 feet to less than 350 kV power lines or 50 feet for greater than 350 kV power lines, you must speak with a Duke Energy representative before beginning work.

Such equipment includes but is not limited to:

- Articulating cranes (such as knuckle boom cranes)
- Floating cranes
- Locomotive cranes
- Multipurpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load
- Industrial cranes (such as carry deck cranes)
- Pedestal cranes
- Straddle cranes
- Derricks
- Overhead bridge and gantry cranes NOT permanently installed
- Crawler cranes
- Cranes on barges
- Side boom tractors
- Base-mounted drum hoists only when used with derricks
- Tower cranes
- Portal cranes
- Service/mechanic trucks with a hoisting device
- Dedicated pile drivers
- Mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted and boom truck cranes)
- Variations of these types of equipment



Look up and live.

Working around high-voltage transmission lines



Know how to protect yourself, your crew and the public when working around transmission lines.

Duke Energy cares about your safety. This brochure contains important information for:

- Anyone working around power lines
- Grading contractors
- Forklift operators
- Crane operators
- Developers (residential, commercial, industrial)
- Architects and engineers
- Dump truck operators

Contact us

For more information, please visit duke-energy.com/safety or call:

Duke Energy Carolinas
800.777.9898 or 800.POWERON

Duke Energy Indiana
800.521.2232

Duke Energy Kentucky or Ohio
800.544.6900

Duke Energy Progress
800.452.2777

Duke Energy Florida
800.700.8744

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550 South Tryon Street
Charlotte, NC 28202



www.duke-energy.com

Know your voltage, know your clearance

A planned project is a safe project

Federal law requires that all contractors maintain at least a 10-foot clearance from overhead power lines up to 50 kV. Greater clearance is required for higher-voltage power lines and cranes and derricks in construction.

Contact Duke Energy at least three working days before you start working near overhead power lines and equipment so that safety recommendations can be made.

Treat all transmission lines, regardless of their operating voltage, with caution:

- 44 kV and 100 kV lines look similar.
- Never assume a voltage based on the illustration.
- Minimum clearance includes maximum sag, which must be calculated for each instance.
- Injury or death can occur without touching power lines.
- Assume all overhead power lines are energized.
- Contact Duke Energy if you are in doubt about safe operating distances.

Fact 1.

Power lines that serve your homes and businesses are not insulated like home appliance cords.

Fact 2.

Power lines carry 4,000 to 500,000 volts of electricity that can seriously injure or kill on contact.

Fact 3.

The simplest way to stay safe is to know where your power lines are located and stay away.

Check the job site for hazards and know the location of all overhead power lines and electric equipment, including poles and guy wires.

Consider all overhead lines as energized. Mark the work site boundaries to keep workers, vehicles, tools and equipment a safe distance from electric lines and equipment.

Hold a pre-work safety meeting, pointing out areas where overhead lines and electric equipment are located.

We can help you:

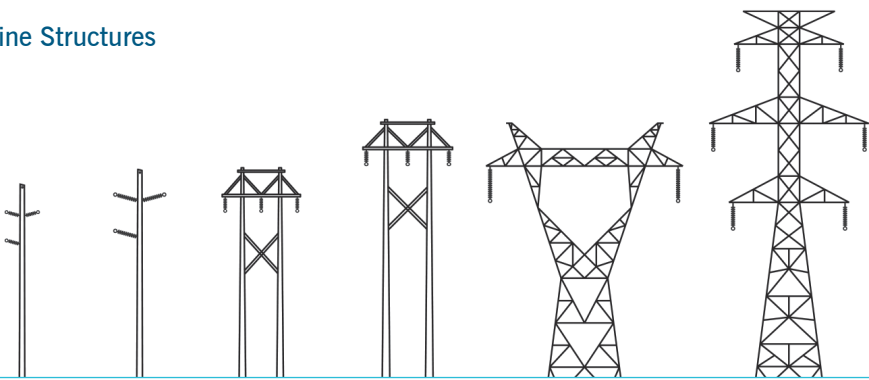
- Confirm voltage
- Confirm clearance
- Confirm wire height under peak conditions
- Provide safety guidance around power lines
- Review and approve drawings for:
 - Compliance with right-of-way restrictions
 - Compliance to National Electric Safety Code
- Identify the best, safest solution

Emergency situations

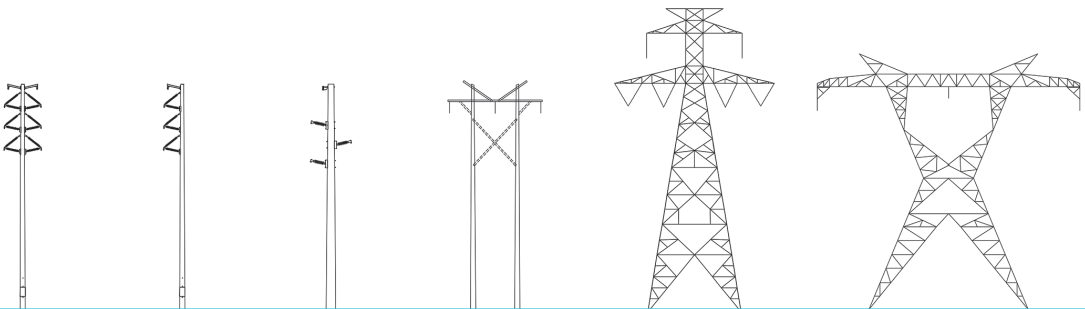
If your equipment makes contact with an overhead power line, notify Duke Energy immediately and take these precautions:

- Have someone call 911.
- Do not attempt to turn off engines or generators.
- Move equipment away from the line only if it is safe to do so.
- Remain on equipment until utility workers arrive and de-energize the line.
- Warn others to stay away. Those on the ground can be injured or killed if they make contact with the equipment.
- If you must leave the equipment because of fire or other dangers, jump off with your feet together. Never touch the ground and equipment at the same time. Keeping your feet together, shuffle or hop away until you are clear of the area.

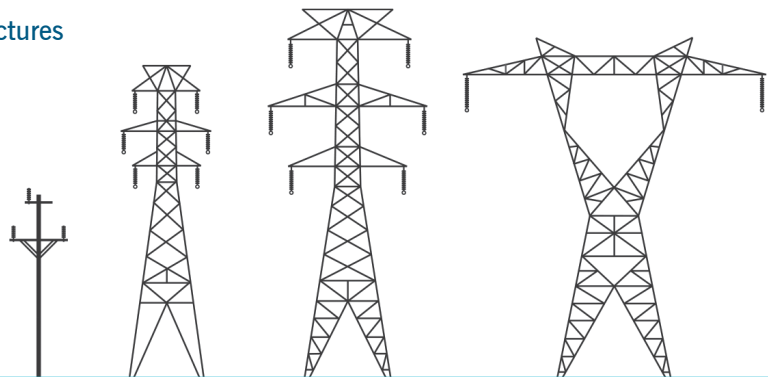
Duke Energy Midwest Transmission Line Structures



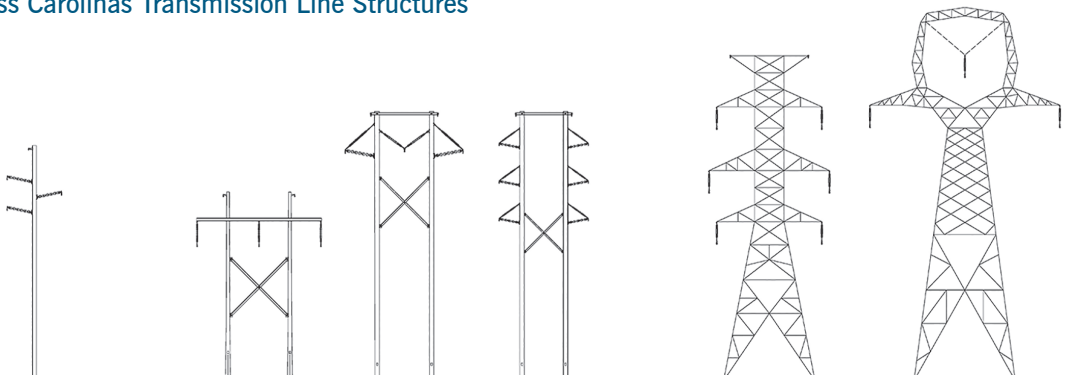
Duke Energy Florida Transmission Line Structures



Duke Energy Carolinas Transmission Line Structures



Duke Energy Progress Carolinas Transmission Line Structures



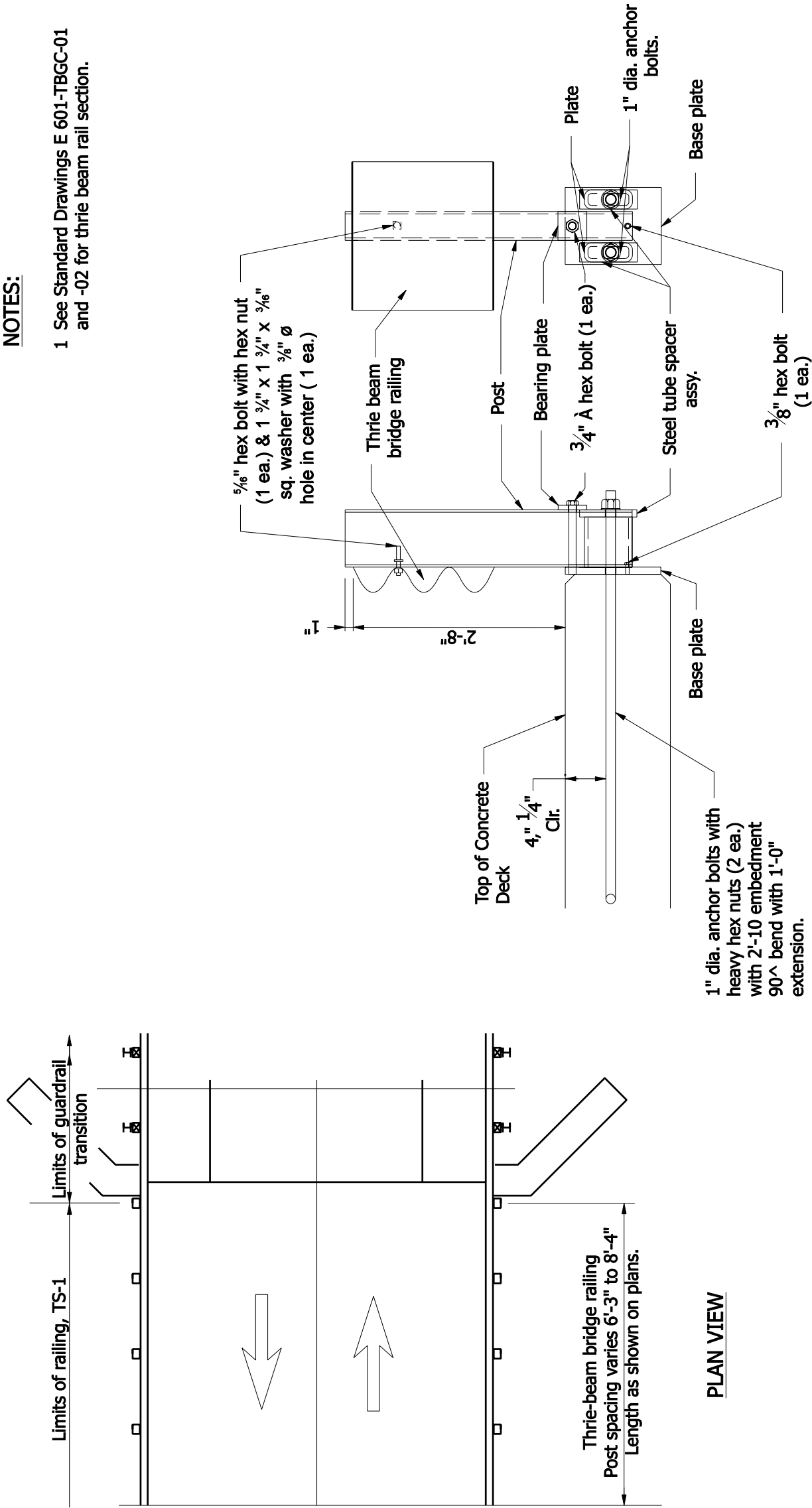
For more information, visit duke-energy.com/safety.

APPENDIX G

Details for
Guardrail Transition TGS-1&Railing TS-1

NOTES:

- 1 See Standard Drawings E 601-TBGC-01 and -02 for thrie beam rail section.

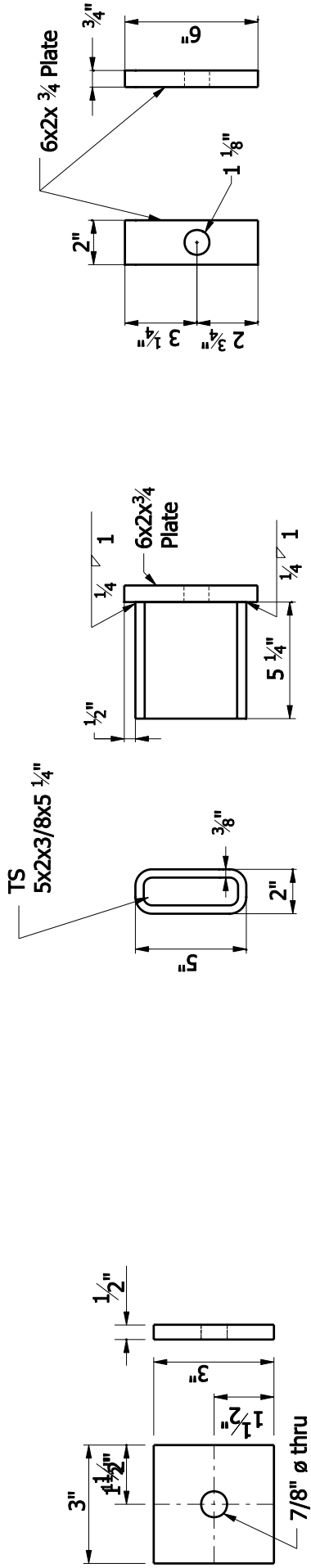


THRIE-BEAM BRIDGE RAILING
ASSEMBLY DETAILS

ELEVATION VIEW

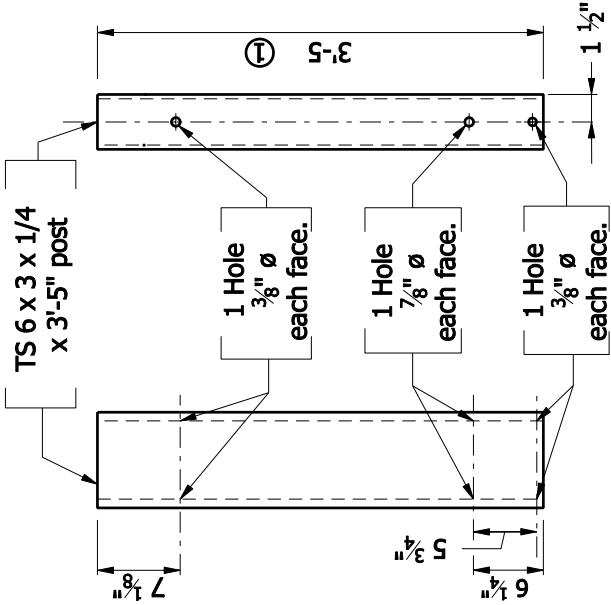
NOTES:

- ① Post length may vary. If the 1" ∅ anchor bolts in the deck must be lowered to accommodate the deck reinforcing steel, the steel base plate shall be lowered and the post length increased.



BEARING PLATE

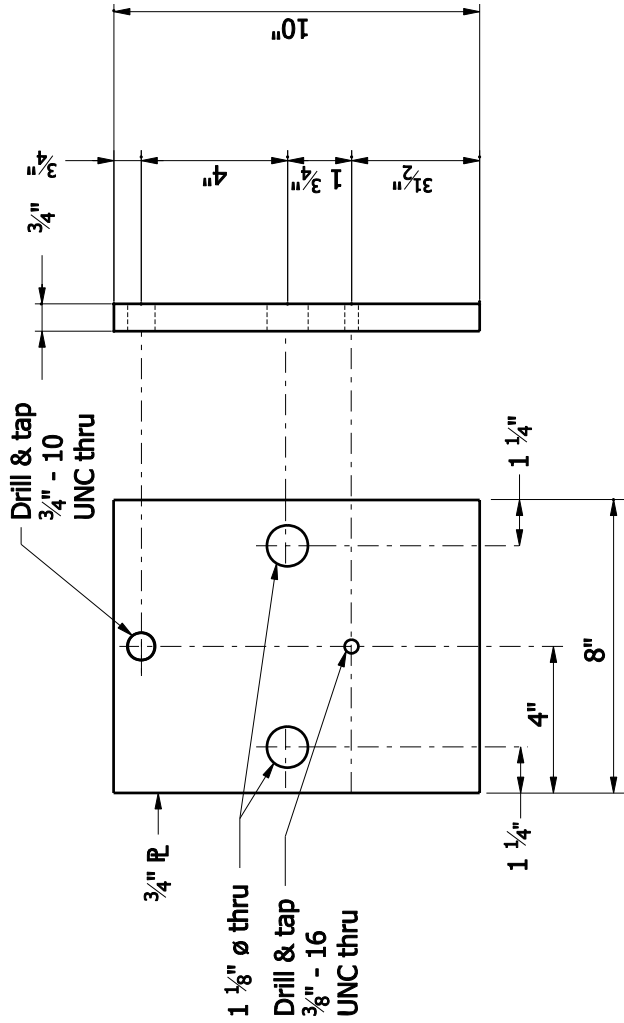
STEEL TUBE SPACER ASSEMBLY



SECTION

REAR VIEW

BRIDGE STEEL POST DETAIL



BASE PLATE

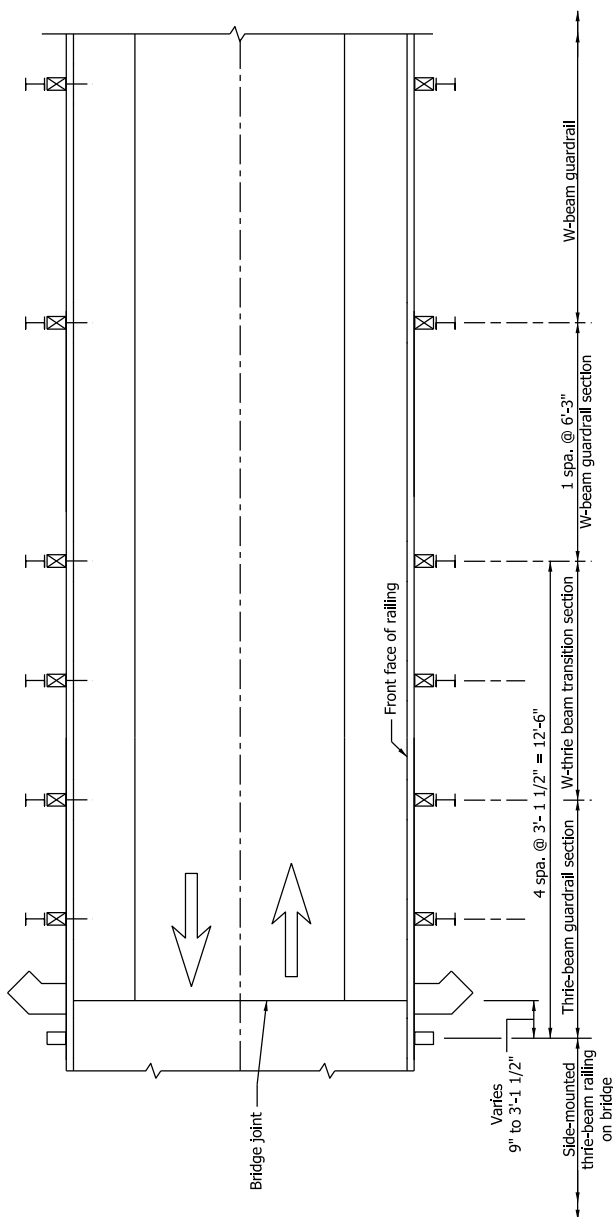
INDIANA DEPARTMENT OF TRANSPORTATION

RAILING, TS-1

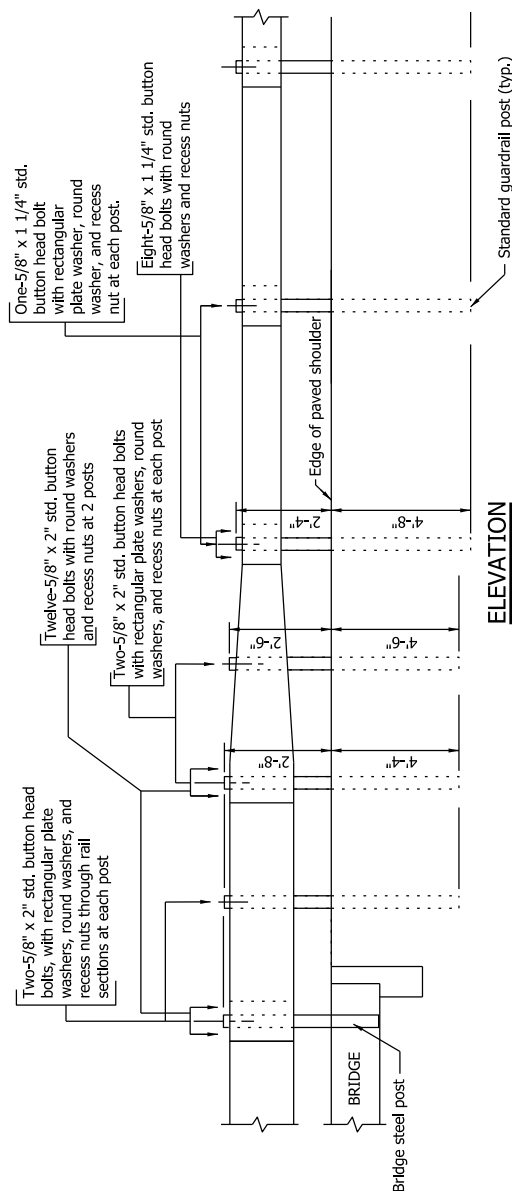
7-25-05

NOTES:

1. See Recurring Plan Detail E 706-B-140d 1 of 3, for bridge Steel Post Detail.
2. See Standard Drawings E 601-TBGC-01 and E 601-TBGC-02 for thrie-beam guardrail components.
3. See Standard Drawings E 601-WBGC-01, E 601-WBGC-02 and E 601-WBGC-03 for W-beam guardrail components.



ELEVATION



INDIANA DEPARTMENT OF TRANSPORTATION

GUARDRAIL TRANSITION, TGS-1

APPENDIX H

Specification Sheet for Taylor Creek Filter Strip



Indiana Specification Sheet

327 (CONSERVATION COVER) - general purpose - CP21

Landowner: Barbara & John Chamness

County: Hamilton

Farm: 1512	Tract: 782	Field(s): 2	Primary Seeding Practice Acres: 0.5	Planted Width 20'	Slope %	Grade %	Flood Frequency NO	Shade? NO	Date: 5/13/2015
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Soil Type(s): Pn, Sx

Soil Drainage Class: (with artificial drainage)

RECOMMENDED SPECIES and SEEDING RATE (PLS #/ac = Pure Live Seed Pounds per Acre)

COVER CROP / NURSE CROP / COMPANION CROPS	RATE PLS#/ac	TOTAL = (RATE X ac)	COVER CROP / NURSE CROP / COMPANION CROPS (continued)	RATE PLS#/ac	TOTAL = (RATE X ac)

NOTES:

GRASSES	RATE PLS#/ac	TOTAL = (RATE X ac)	LEGUMES	RATE PLS#/ac	TOTAL = (RATE X ac)
Orchardgrass	2.00	1.00 lb	Clover, Red	3.56	1.78 lb
Timothy	0.53	0.27 lb			

NOTES:

BEFORE PLANTING in Year:

- ☒ Herbicide₁ (per label): herbicide for burndown Dates = Spring 2016
- ☐ Herbicide₂ (per label): Dates =
- ☐ Tillage: Dates =
- ☐ Structures, Grading, Leveling, Filling – See the attached Design Sheet.
- ☐ Apply fertilizer/manure and lime according to an approved soil test and plan.
- ☐ Other:

PLANTING METHOD in Year:

Herbaceous Cover Planting Method:

Planting Dates = See Seeding Dates Attached

(If unforeseen circumstances prohibit the planting by this date, please contact our office as soon as possible)

POST-PLANTING MAINTENANCE & MANAGEMENT

- ☒ **Mowing:** BEFORE final Status Review, or up to three (3) years after planting, mow to a minimum height of four (4) inches for cool-season grasses and eight (8) to twelve (12) inches for warm-season grasses when the weeds are 12 inches taller than the planted grasses as needed

***AFTER** final Status Review, or 3 years, mow cool-seasons no lower than 4 in; warm-season 8 - 12 in

- ☐ Herbicide (per label): ☐ Prescribed Burning: According to an approved plan

Cover/Nurse Crop Management:

Herbicide (per label): Crimping

Other:*

*NOTE: After the final Status Review has been issued, or 3 years after planting, weed control and other maintenance activities will not occur between April 1 - August 1, and will occur on a "spot" basis only, unless prior approval is granted by the FSA County Committee.

Seeding Dates

See the acceptable seeding dates chart on the attached page.

Seeding within the appropriate dates, with the corresponding rates, will enable NRCS to certify the seeding timely. If the seeding is completed outside of the dates on the attached charts, NRCS will verify that the planting was a success (based on germination) prior to practice certification.

Specific Species
Considerations:

ADDITIONAL INFORMATION

SEEDING WINDOWS FOR PERENNIAL VEGETATIVE COVER IN INDIANA

Plant Species	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec-Feb.
Cool Season Grasses			1				1			Dormant ²
Forage Legumes										Dormant ²
Native warm season plants										Dormant ²
Native Wildryes										Dormant ²

¹ Tall Fescue and/or Perennial Ryegrass only, with a mulch cover, Primarily for Critical Areas.

² Dormant/Frost seeding from December thru February. Increase seeding rates by 25%. Not for Critical Areas or new forage establishment.



Flood plains and ponded soils